FEEDSTUFFS®

★ A WEEKLY NEWSPAPER ★

FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

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Chick, Poult Production Shows Gain

WASHINGTON — While hatchery production of chicks and turkey poults is at a low point seasonally, it may be noted that output late in the year has continued to run ahead of a year earlier.

Demand for broiler chicks has declined considerably from the high levels of past months, but the latest U.S. Department of Agriculture hatchery report shows that it has remained ahead of a year ago, in spite of low broiler prices. This also has been indicated in broiler chick placements in principal areas.

The hatch of chicks for laying flock replacement is now seasonally small, but for October, the hatchery report shows, output was still up some from a year earlier.

Bigger Poult Output

Another part of the hatchery report indicates that late poult demand has been exceeding last year. While low seasonally, output of heavy breed poults in October was more than twice as large as a year ago.

According to the USDA hatchery report for October, total chick output during the month was 120,789,000—up 10% from a year ago.

Broiler chick production, which accounted for 86% of the chicks hatched during October, totaled 103,501,000, representing an increase of 11% over a year ago. For the first 10 months of the year, broiler chick production totaled 1.2 million, or 21% more than a year earlier.

Indicating a relatively large November hatch also, the USDA report showed that the number of broiler chick eggs in incubators on Nov. 1 was 10% more than a year earlier. Increases in the middle Atlantic, south Atlantic and south central regions more than offset decreases in New England, north central and western regions.

Firmer Broiler Prices

Meanwhile, recent reports from broiler areas indicate that broiler prices have been somewhat firmer than previously, though still not satisfactory.

(Continued on page 104)

BROILER SUPPORT PROGRAM?

WASHINGTON—Comments made this week by Ezra Taft Benson, secretary of agriculture, indicating that he might consider a support buying program for the broiler industry, were greeted with little enthusiasm by feed industry representatives who are available here. They say that the broiler industry, with its short cycle of production, might find a support program harmful rather than constructive for poultry producers. It is believed unlikely that Mr. Benson would undertake support buying without consulting an industry advisory committee.

FEEDSTUFFS *Features This Week*

IMPROVING FEED EFFICIENCY: The challenge to the feed industry and others in improving average efficiency, in getting research results into wider use, is noted by Dr. Byron T. Shaw on **page 29.**

MATERIALS HANDLING: New methods of handling bulk and sacked feeds at an Iowa plant are described on **page 10.**

OPPORTUNITIES, RESPONSIBILITIES: Dr. R. R. Spitzer, on **page 44,** shows the opportunities for and responsibilities of the feed industry in continuing feed and farming changes.

QUALITY CONTROL: Advice on quality control procedures and facilities for both large and small mills is provided by Maxwell L. Cooley on **page 80.**

SWINE AND POULTRY NUTRITION: Some of the important recent developments in swine feeding are discussed by Dr. J. A. Hoefer on **page 50.** The latest information on turkey nutrition, as outlined by Dr. M. L. Scott, will be found on **page 86.** Possibilities of reducing poultry feed costs by the use of separate rations for males and females are pointed out by Dr. H. Yacowitz on **page 54.**

BUILDING BUSINESS: Articles on **pages 62** and **75** tell how modernization, new equipment and other measures have helped retailers improve their business.

OTHER: The impact which disease problems have had on animal nutrition is discussed by Dr. Morris Erdheim on **page 18.** Research on the use in feeds of feather meal and hair and hoof protein is reviewed by Dr. O. H. M. Wilder on **page 70.**

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Survey Shows Majority of Trade Favors Change to Cwt.

WASHINGTON—A change in the grain trading basis from bushels to hundredweights is favored by a majority of grain and feed trade members replying to a survey conducted by the Grain & Feed Dealers National Assn.

This is shown in a final tabulation of replies on the bu.-vs.-cwt. question which was submitted in the survey to members of the G&FDNA.

Among some 550 respondents, a majority of almost 2 to 1 indicated approval of the proposed change. The tabulation shows that the change was favored by 335 persons and was opposed by 179. Thirty-six persons indicated that they were neutral or "don't care."

The replies were in anwser to one of nine questions in the survey form. The question was: "At this time, are you in favor of, or opposed to, the proposal to change grain trading weight units from bushels to hundredweights?"

The response to the survey was considered remarkable. More than 25% of the survey forms were returned,

(Continued on page 101)

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Progress Noted in Proposed Shift to Cwts. in Canada

WINNIPEG — Considerable progress has been made in Canada, as well as in the U.S., in efforts to have the grain trading unit changed from bushels to hundredweights.

This was noted recently by E. E. Baxter, chief statistician with the statistics branch of the Board of Grain Commissioners for Canada. Mr. Baxter is heading a full-scale investigation of the question in Canada.

Mr. Baxter said reports received from the U.S. indicate that it is possible to make the change in the U.S. by 1958. In Canada, he said, it is still not clear whether the proper information can be gathered and distributed in time to obtain the necessary support and make the change by that time.

However, he said, there is an increasing body of opinion in favor of the change.

In July, Mr. Baxter presented a preliminary report on his investigation to the special committee on agriculture of the Canadian House of

(Continued on page 104)

Drouth Conditions in Missouri Under Study

WASHINGTON — A front office team from the staff of the Secretary of Agriculture will make an on-the-ground study of drouth conditions in the entire state of Missouri.

The governor of that state has declared virtually every county in that state a drouth disaster area.

Approval of such findings by the special USDA study staff probably would bring these counties into the federal drouth emergency feed program.

Lower Feed Grain Prices Indicated

Reduced Level Seen In USDA Action On Corn Supports

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON—The U.S. Department of Agriculture has knocked down the price support level for corn for the 1957 crop.

This action confirms previous Feedstuffs reports that after the election, the administration of Ezra Taft Benson, secretary of agriculture, would move the price of corn into lower ground to meet the requirements of the deficit feed areas of the nation.

USDA has lowered the support level for corn produced in the commercial corn area, under either of two alternatives. Dec. 11 will be the date of a referendum in which producers in the commercial area will decide on the kind of corn program, using either base acreages or acreage allotments, to be in effect. (See story on page 12.)

Alternatives

If corn is under the base acreage program of the soil bank, the support level will be 74% of parity, or $1.31 bu. If farmers reject this program, they can string along with the old program of acreage allotments and obtain $1.36 bu., or 77% of parity.

Under the base acreage program, the base acreage for the commercial area each year through 1959 would be 51 million acres. To be eligible for support a farmer must not exceed his corn base acreage; he must place an acreage equal to at least 15% of his corn base in the acreage reserve for

(Continued on page 101)

Sales Policy Change Eyed

WASHINGTON — A U.S. Department of Agriculture staff group is visiting the commercial corn area to ascertain what changes may have to be made in the corn sales policies of CCC.

It is unlikely that any major switch will be made for at least another two weeks.

Prior to the report by this team, it is said by staff officials here that they do not intend to follow previous sales policies wherein grain sorghums have been a better buy than corn, thereby closing export outlets for the big feed grain.

The inference—and it is only that—is that USDA may probably take a more liberal view of corn disposal, particularly on stocks of the 1953 crop, which may include substantial quantities in danger of going out of condition.

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EDITORIAL STAFF—Harvey E. Yantis, Editor; George L. Gates, Managing Editor; Roger Berglund, Assistant Managing Editor; John Cipperly, Washington Correspondent; Emmet J. Hoffman, Merchandising Editor; Walter C. Smith, Research Director.

WASHINGTON CORRESPONDENT—John Cipperly, 604 Hibbs Building, Washington, D. C., Telephone, Republic 7-8534.

ADVERTISING STAFF—Wilfred E. Lingren, Advertising Director; Carl R. Vetter, Advertising Production Manager; Bruce A. Kirkpatrick, Assistant Advertising Production Manager.

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Big Drouth

THE October issue of the Agricultural Situation, published by the Corn Belt Farm Dailies, contains an informative analysis of the impact of the severe and long continued drouth on Great Plains farming. How bad is it? What are to be its consequences? How are Plains' farmers and ranchers meeting it?

The conclusion advanced is that the drouth is bad, disrupting and demoralizing. It is termed the chief depressant of western agriculture at the moment. But it is just as true, the Dailies' analysts believe, that this drouth is not as bad as many not on the scene may believe. "What most of us don't count on is the reserve of resources which people who live in the drouth-prone areas husband for use in a time like this," it is said.

This drouth has lasted for from three to seven years. It has become more acute this year because half or less of the long term average annual rainfall was received during the first nine months over all or large parts of Texas, Oklahoma, Kansas, Colorado, New Mexico and Nebraska. Dry weather has extended to other areas, but these states comprise the real drouth stricken area.

And yet, the Dailies point out, the drouth this fall is not spectacular in effect. It has produced no mile-high dust clouds, no rash of farm and ranch foreclosure sales. It has produced a quiet determination on the part of thousands of the nation's best farmers who are riding it out, and so far it has forced surprisingly few to throw in the sponge.

In terms of measurable lack of rainfall, this drouth is the worst in recorded history, but in other respects it isn't, the analysts believe. The difference lies almost alone with the farmers and stockmen who live and work on the Plains. They themselves, say so.

Where the situation is better than in the '30s, farmers say, it is because those who live there accumulated the resources, tangible and intangible, to see it through. For example, experts agree that the "dusters" of this drouth have been more local in character than the storms of the '30s. Even in the days when the Plains' area was sodded from one end to the other, there were dust storms, and undoubtedly there always will be some.

But the farmers in 1956, unlike those in 1936, have been able to take advantage of many newly found soil control practices, and they have poured dollar after dollar into conserving the fields—chiseling and listing their soil as the need has arisen over the past three to five dry years.

"The fact that these frugal farmers have the money and the heavy equipment is amazing to some," the review states. "Even a county extension agent who has lived on the Plains for over 20 years remarked that he was sure farmers had spent nearly all the good-years' dollars as fast as they made them. Now he knows they did not."

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WHAT are to be the consequences of the drouth? A survey showed these short and long term results as likely to accrue:

1. The 1957 wheat crop in the Plains will be greatly reduced in comparison with former years both because of the drouth and because of heavy participation in the government's "soil bank" program.

2. Local cattle herds are being drastically reduced in numbers, and a few are being liquidated.

3. Feed is scarce and roughage prices relatively high. Hay prices on the Plains range from $25 to $40 a ton.

4. Numerous small farmers and their wives have found part-time jobs. Older and better established stockmen are running on accumulated savings.

5. Pastures and range, though grazed off completely in many places, are still in good enough shape to recover if normal rainfall comes soon. Plains' soils, though in a condition to blow, still may be kept under control by timely moisture and proved tillage practices.

Obviously, many of the consequences of the drouth are temporary and will vanish as soon as years of normal rainfall recur in the weather pattern. The soil is rich and needs only moisture to produce heavy yields. Grasses will come back. E. H. McIlvain, superintendent of the USDA field station at Woodward, Okla., observed that "our hardy grasses have a terrific resiliency," and that such desirable types as little bluestem and sand bluestem are holding out on the strength of deep taproots. Return of these things will bring back the livestock economy to its former status.

Fighting drouth is slow business. Some, fortunate enough to have water available, do it through irrigation. The others shift to meet the situation, husbanding all the resources they can and holding themselves in readiness to come back with the rains.

A helping hand has been extended to them by the people of the nation through government aid. In areas designated as drouth disaster spots, feed can be purchased for livestock at reduced rates. In many instances, the government permits grazing of soil bank acres. And the soil bank itself is going to help many Plains' grain producers through. The sign-up for placing wheat land in the bank has been extremely heavy.

Around Dodge City, Kansas, the sign-up was estimated to have included parts of nearly 90% of the farms in the county. As one Ford County stockman put it:

"Most farmers here will be getting about $18 an acre for the soil bank land. Year in and year out, that is just a pretty good return, considering that no expense is involved. Most farmers are glad to have the help this year. But they would rather have had rain!"

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SUCH statements reflect the attitude of the Plains' people. They want no hand-outs, but they must shift their plans to meet the source of trouble in every way possible. They want to stay on the land.

This goes for both old and younger farmers. Credit for hanging on gamely must go as much to the latter and their wives as to those who have had years to gather in resources for the expected drouth times. The Dailies' survey shows that the young people with only a small start and little credit are sticking it out, and many are doing quite well by their families at part time jobs or part time farming, as the case may be. The variety of work farmers are doing besides their own chores ranges from servicing oil wells and truck driving to construction work and working for their neighbors.

"For the Plains' farmers and stockmen, the drouth fight is a tough one and it already has been a long one," the analysis concludes. "But by now they know what it is all about, what it takes to save the land to the extent humanly possible, and what it takes in fortitude and ingenuity to keep their homes and acres—and they are acting on what they know.

"Already, breaks in the drouth have occurred in the form of heavy rains in parts of Texas, Oklahoma and Kansas. Amounts have ranged up to six inches, and this moisture has brought new hope in the prospects for the winter wheat crop and spring grazing. But more will be needed to crack the big drouth, and the Plains' people are betting it will come."

A FEEDSTUFFS FORMULA FEEDS: HOW'S BUSINESS? FEATURE

No significant changes in formula feed sales were reported this week, although an improvement was anticipated in areas hit by severe cold weather. Broiler prices have strengthened somewhat but are still not satisfactory. Ingredient price changes were somewhat mixed, with millfeed and linseed meal firming, soybean meal holding about steady and animal by-products lower. The index of wholesale feedstuffs prices advanced .9 point to 81.8, compared with 76.5 a year ago, and the feed grain index moved up 1.5 points to 77.4, compared with 63.8 a year earlier. (Ingredient details on pages 102-104.)

Northwest

A solid blast of winter in the Northwest late this week was expected to give feed business the acceleration needed to bring volume up to seasonal levels this week. Orders already have started to pick up, some manufacturers noted.

Up until cold weather and snow hit volume was just about holding steady with the level of recent weeks. Some manufacturers reported good dairy feed volume, equal to or better than a year ago.

Sales of laying feeds have been lagging, but the necessity of housing birds now should stimulate this volume. A moderate amount of turkey feed is moving to owners of flocks holding birds for later marketing and owners of broiler flocks.

Sales of hog feeds in the past week or two have slipped from October volume for most manufacturers. However, business in this category was reported to be about in line with last year's sales.

Operations, which had to be trimmed back somewhat at some plants recently, are expected to improve for a time now.

Southwest

Poor feeding ratios were getting most of the blame this week for a slack off in formula feed business. Mills generally reported that sales were slower than last week and also slower than feed manufacturers feel they should be for this time of year. About the only improvement noted was in broiler feed business by some mills. A little stronger broiler price has helped in that market.

Egg mash business has not yet picked up the way it usually has in previous years. And mills report that the turkey business is about over, with most of the turkeys having gone to market.

Cattle feed sales and shipments against previous orders have been fair, mills indicate. Dairy feed business has been limited, with the drouth feed situation said to be cutting into that market. One mill reported a slight pickup in hog feed business, but others said they didn't anticipate much there because of the poor feeding ratio.

Production was about the same as the week before—the best being three shifts for five days and the average, one to two shifts five days. The Thanksgiving holiday has prompted at least one manufacturer to plan a Saturday run so that there won't be any big backlog of orders next week.

Prices are on their way up. Indications are that the stronger ingredient markets will mean increases in feed prices of 50¢ to $1.50 ton.

In Texas, a good volume of feed business is reported for this week,

(Continued on page 106)

Low Range, Pasture Conditions Remain In Western States

The long standing drouth in the West has continued with rather limited local relief provided by October and November precipitation, according to a report by the U.S. Department of Agriculture.

Some rain in October and early in November gave much needed moisture to eastern Texas, parts of Oklahoma and eastern Kansas. October precipitation has helped grazing conditions in Oregon, Washington, Idaho, northern Nevada and California. Early November snow temporarily closed grazing in parts of the Central Plains. The late precipitation will make little new feed in the northern areas, but softened grass.

Range feed supplies are fair to good in western Montana, much of North Dakota, parts of South Dakota and local areas of Wyoming. Range feed is short in eastern Montana, southwest North Dakota, parts of South Dakota and in central and south central Wyoming, according to the USDA report.

Conditions Poor

Nebraska has short range and pasture feed, except in the Sandhills, the report continues. Kansas has the poorest range and pasture feed since 1934. Colorado has the lowest range feed condition for Nov. 1 since 1934, with poor grazing in the east and rather dry, short feed in other sections. Oklahoma has poor grazing, with the lowest range feed condition for Nov. 1 of record, but late rains improved prospects for small grain pastures.

Texas, with a record low Nov. 1 range feed condition, has received rains that will make some grazing in the eastern sections, but the northwest, west and southern sections continue critically dry. New Mexico has poor range feed with continued supplemental feeding. Arizona has continued drouth, with the lowest Nov. 1 range feed condition since 1924.

Grazing conditions are fairly good in Idaho, Oregon, Washington and northern Nevada. Utah has poor to fair grazing.

The condition of the range and pasture feeds in North Dakota as of Nov. 1 was below that of a year earlier and also below the Nov. 1 average. Rains in late October and early November were too late to help vegetation this year but will help soften the grass and alleviate the stock water problem which was becoming acute on some southwestern ranches. Supplemental feeding of livestock has been necessary in some localities of North Dakota.

Supplemental Feeding

Prospects are poor for wheat pasture in the central and southern plains where much of the dryland sorghum production was very limited. Supplemental feeding of livestock has continued in the dry and drouth areas. The heavy demand for feed has drawn heavily on hay and other feeds in irrigated sections.

Cattle and calves have maintained fairly good condition, except in the dry areas where supplemental feeding has helped to hold cattle in fair flesh. There are some thin cattle in the more severe drouth sections. The marketing of cattle and calves was heavy during October and, as usual, was the peak month of the fall run. Calf marketings were particularly heavy from the western states.

Sheep and lambs have generally maintained good condition in the northern and western areas. Sheep in the dry areas of New Mexico, Arizona and Utah are in only fair condition. The Texas sheep section has very poor feed, with sheep in poor to fair condition. Lamb marketings were heavy during October, with some selling of ewes in the drouth areas.

Range Feed Conditions Nov. 1, 1956, With Comparisons

Equivalent of reported conditions: 49 or below is very bad; 50 to 59 bad; 60 to 69 poor; 70 to 79 fair; 80 to 89 good; 90 to 99 very good; 100 and over is excellent.

State	Nov. 1, 1956	Oct. 1, 1956	Nov. 1, 1955	10-Yr. aver. 1945-54
North Dakota	74	77	77	80
South Dakota (western)	71	72	75	84
Montana	73	74	81	83
Wyoming	66	69	76	79
Nebraska (westn.)	68	68	75	84
Kansas (westn.) ..	46	45	67	77
Colorado	61	65	75	79
Aver. 17 western range states (weighted)	63	63	76	78

AWARD—Dr. L. A. Wilhelm, head of poultry research for the Quaker Oats Co., Chicago, was honored with the "Golden Egg" award at the recent meeting of the Indiana State Poultry Assn. at Indianapolis. Handing him the award is Harold Hanlin (right), Hanlin's Hatchery, Alexandria, past president of the Indiana group. Dr. Wilhelm was formerly secretary of the Indiana State Poultry Assn. and has worked as an extension poultryman.

Production of Millfeed Slows Down

Production of millfeed in tons for week ending Nov. 9, and prior two weeks, together with season total of (1) principal mills in Nebraska, Kansas and Oklahoma and the cities of Kansas City and St. Joseph; (2) principal mills of Minnesota, Iowa, North and South Dakota and Montana, including Minneapolis, St. Paul and Duluth-Superior; (3) mills of Buffalo, N.Y. Production computed on the basis of 72% flour production.

	Southwest* Weekly production	Southwest* Crop year to date	Northwest* Weekly production	Northwest* Crop year to date	Buffalo† Weekly production	Buffalo† Crop year to date	Combined** Weekly production	Combined** Crop yr. to date
Nov. 5-9	27,374	499,149	14,284	268,263	11,362	211,800	53,020	979,212
Prev. week	‡28,425		‡14,469		11,926		‡54,820	
Two wks. ago ..	27,819		14,747		11,711		54,277	
1955	25,643	492,638	13,825	265,882	11,451	152,095	50,919	910,615
1954	24,966	472,850	14,172	260,761	12,106	200,830	51,238	1,034,441
1953	25,406	458,659	16,288	265,129	11,403	192,900	53,097	916,688
1952	26,122	475,971	16,175	292,209	19,910	195,913	62,197	977,093

*Principal mills. **74% of total capacity. †All mills. ‡Revised.

Board of Trade at Toledo to Move

TOLEDO — The Toledo Board of Trade will move its facilities from the Lamb Building to the Richardson Building next April, according to G. J. Forrester, president. The move will increase the Board of Trade space by 50%.

Firms moving with the board will include the Norris Grain Co., Forrester Grain Co., Spencer-Kellogg & Son, L. J. Schuster Co., Lansing Grain Co., B. J. B. Grain Co. and the Anderson Elevator Co.

The Richardson Building will be renamed the Board of Trade Building when the move is completed. It is expected to become a new center of grain operation and seaway transport in Toledo.

Along with the development of the St. Lawrence Seaway, a new era in the international grain trade is being planned in Toledo and the Board of Trade and member firms are moving to more adequate and modern quarters to meet the future growth, Mr. Forrester explained.

ELEVATOR SOLD

PORTLAND, ORE.—Cargill, Inc., has sold its Globe elevator at Portland to Leval & Co. The elevator has passed through several hands in recent years, being one of the smaller types, with a rated capacity of 750,000 bu. Leval & Co. will take possession Jan. 1.

Pillsbury Announces New Bulk Feed Delivery System

CLINTON, IOWA—Pillsbury Mills, Inc., has announced a new bulk feed delivery plan for its Clinton plant sales area. Under the new plan, feed can be delivered in bulk directly from the plant to farmer customers within a 50-mile radius of Clinton.

The new bulk system at Clinton is similar to a type of service which the company first introduced in north Georgia, where tremendous production of broilers has meant extensive bulk delivery. Pillsbury also has used the system for several years in California.

According to G. R. Peterson, feed division general manager, plans are now under way to install bulk delivery systems at all of the company's feed plants.

"The economies, convenience and labor-saving factors of bulk delivery indicate that such methods are a coming trend in the feed business," Mr. Peterson said.

To introduce the new bulk delivery system to feed dealers in the Clinton area, Pillsbury invited 125 dealers and their key staff people to a dinner meeting in Clinton. Company executives outlined the new plan, explained its advantages to dealers and answered questions.

Executives participating in the program were Mr. Peterson; M. E. Ross, director of marketing research; Lonnie Wright, production director, and M. E. Cook, director of advertising.

International Milling Sales Up, Earnings Dip

MINNEAPOLIS—The sales volume of the International Milling Co. was larger in almost every division than the year before, according to the company's 64th annual report, but strikes at Buffalo and Humberstone, Ontario, Canada, adversely affected company earnings.

These earnings were about 12% lower than in 1955, according to Charles Ritz, chairman of the board, and Atherton Bean, president. Net profit totaled $4,277,825.

In their statement to stockholders, Mr. Ritz and Mr. Bean said International's purchase of Sargent & Co., Des Moines, had about doubled the company's formula feed capacity in the U.S. Other plant locations are at Monmouth, Ill. and Fremont, Neb.

The report to stockholders also said there are almost 4,000 employed at the various International offices and plants.

Bemis Will Expand Research Laboratory

MINNEAPOLIS—Bemis Bro. Bag Co., St. Louis, Mo., has announced plans to build a $60,000 addition to its research facilities in Minneapolis to make room for enlarging its materials and testing laboratory.

The new area will house a pilot plant for producing small commercial quantities of new or improved products, said Harold B. Kindseth, Bemis research director.

The research staff will be increased from the 36 employees it has at present to 50 or 60.

Stilbestrol May Be Fed to Cattle Under 600 Lb.

INDIANAPOLIS—Eli Lilly & Co. announces that its diethylstilbestrol premix (Stilbosol) may now be fed to beef cattle under 600 lb.

The company said that its effective new drug application to the Food and Drug Administration has been amended to permit removal of the statement "Not to be fed to animals of less than 600 lb."

Lilly spokesmen said that research completed at the firm's agricultural research center and at various agricultural colleges indicates that growth stimulation is obtained when feed supplements containing stilbestrol are fed to cattle weighing 400 lb. or more. The best response, it was noted, is obtained in high-grain rations.

The safety of feeding stilbestrol to light calves, the company said, was indicated in a recent experiment in which Lilly researchers fed the hormone-like substance to 12 calves for 34 days. Forty-eight hours after the last feeding of stilbestrol, the calves were slaughtered. No traces of estrogenic activity could be detected in the lean, fat, liver, tripe or kidneys of these calves.

Results of several feeding experiments with calves under 600 lb. were cited by Lilly. In Lilly, Purdue University and Iowa State College tests, with high-grain rations, stilbestrol was reported to have increased average daily gains by 9 to 20%. Feed savings in the three tests ranged from 8 to 15%. In Kansas State College and University of Nebraska tests, gains were increased by 3 and 6%, respectively, and feed savings were improved by 3 and 2%. Starting weights of calves in the five experiments ranged from 400 to 535 lb. Days on test ranged from 34 to 251 days.

Illinois Feed, Poultry Groups Name Officers

SPRINGFIELD, ILL. — Dexter Obenhaus, Community Feed Mills, Princeton, Ill., was elected president of the Illinois Feed Assn., at the annual meeting of the association held jointly with the Illinois Poultry Improvement Assn. in the Springfield Armory Nov. 14-15.

Bruce L. McDonald, Globe Feed Co., Rockford, was chosen vice president. Alben T. Myren, Faultless Milling Co., Springfield, was reelected treasurer, and Dean M. Clark, Chicago, was reappointed executive secretary.

The following new directors were elected: Bruce B. Glezon, Mont-Eagle Mills, Oblong; Peter Lovekamp, U. & L. Grain Co., New Berlin and R. J. Hoyle, Lee County Grain Assn., Lee Center, Ill.

Gale Baker, Bakers Feed Store, Charleston, retiring president of the Illinois group, and J. C. Van Antwerp, secretary of the Illinois Feed Dealers & Mixers Assn., Galesburg, jointly announced the merger of the two associations.

New officers of the IPIA are Gerald Weaver, Weaver's Hatchery, Williamsfield, president; Carl Keys, Keys Hatchery, Delavan, first vice president; Henry Marlowe, Marlowe's Hatchery, Huntley, second vice president; Aubrey Harless, Harless Hatchery, Shelbyville, secretary-treasurer; Charles Meler, Nashville (Ill.) Hatchery, delegate to the American Poultry & Hatchery Federation.

A complete account of the convention will appear in Feedstuffs next week.

Soybean Crushings At Record Level In Past Season

MINNEAPOLIS — Crushings of soybeans for oil totaled 283 million bushels in 1955-56, according to the Bureau of the Census. This is the largest of record and compares with 249 million in 1954-55 and 213 million in 1953-54.

The outturn of oil per bushel of soybeans was 11.1 lb. in 1955-56 as against 10.9 in 1954-55 and 10.5 the 5-year average.

Supplies of soybeans for 1956-57 are estimated by the U.S. Department of Agriculture at 474 million bushels, or 93 million more than for 1955-56, the previous record. Carryover stocks of old crop soybeans in all positiions on Oct. 1 totaled 3.7 million bushels. This compares with nearly 10 million a year ago and 1.3 million on Oct. 1, 1954.

A record crop of 470 million bushels of soybeans was indicated on Oct. 1, according to the Crop Reporting Board. This is 27% above the previous record crop of 371 million in 1955 and 85% above the 10-year average of 254 million bushels. The indicated yield of 22.4 bu. per acre is a record and compares with last year's yield of 19.9 bu. The 1956 crop was reported to be of good quality, low in moisture content, and contained considerably less foreign material or other degrading factors than the preceding year.

Exports of soybeans last season totaled 65.6 million bushels, an increase of around 5 million over the previous record in 1954-55.

Soybean prices last season ranged from a low of $2.18 bu. in September, 1956, and $2.19 in November, 1955, to a peak of $3.10 in May, 1956.

The 1956 crop will be supported at an average of $2.15 bu. as against $2.04, the rate for the 1955 crop. Last season farmers put 30.1 million bushels under price support compared with 41.4 million for the 1954 crop.

Soybean oil prices averaged 12.4¢ lb. in October compared with 10.9¢ a year ago, while soybean meal at Decatur, Ill., averaged around $45.65 —a drop of around $10 from a year ago. Based on average outturns calculated from Bureau of Census reports, the margin between the market price of oil and meal obtained from a bushel of soybeans was 23¢ in October compared with 29¢ a year ago. The average for the 1955-56 season was 10¢ bu. compared with 17¢ for the 1954-55 period.

RETIRED ELEVATOR MAN DIES

SPRINGFIELD, ILL. — Lee F. Chilton, manager of the Island Grove elevator for 20 years prior to his retirement, died at Springfield, Ill. Mr. Chilton, 87, had been a Sangamon County, Illinois, resident his entire life.

JACKETS FROM BAGS — "Original and unusually attractive" was the comment of the cast of NBC-TV's "Today" show when they received sports jackets made from cotton flour and feed bags as a gift from the Fulton Bag & Cotton Mills, New Orleans, during the show's visit there. The jackets, made from the same Fulton striped denim bags in which rural housewives buy flour and feed, were worn on the show by Dave Garroway (center), Jack Lescoulie, sports analyst (left), and Frank Blair, news commentator.

Range Fertilization Boosts Sheep Gains

HOPLAND, CAL. — Half-starved rangeland pastures produce half-starved sheep.

But fall fertilizer applications can speed forage growth during the cold, rainy period of the winter when the sheep cannot get enough to eat on native ranges, says Milton B. Jones, agronomist at the University of California's Hopland Field Station.

In tests at the station during this past winter and spring, sheep on unfertilized, native rangeland lost nearly 10 lb. in the winter and continued to be 10 to 15 lb. lighter than their relatives on improved, fertilized pastures. This weight difference continued through weaning time in late May, Mr. Jones said.

Chief Chemist Named By Central Soya Co.

FORT WAYNE, IND.—Newly appointed as chief chemist at the Chattanooga plant of the Central Soya Co. is Edward Martin, announces R. W. Odle, manager, products standards.

Mr. Martin is a graduate of Northeast Missouri State Teachers College and in 1952 received his M.S. degree in agricultural chemistry from the University of Missouri.

For the past three years, Mr. Martin has been nutritional chemist for Commercial Solvents Corp., Terre Haute, Ind., and prior to that time was research chemist for another feed manufacturer.

FIRE DESTROYS ELEVATOR

FORT WAYNE, IND. — Fire destroyed a grain elevator belonging to the Allen County Cooperative Assn. at a site 18 miles west of Fort Wayne, Ind. Officials of the organization said its loss is over $50,000.

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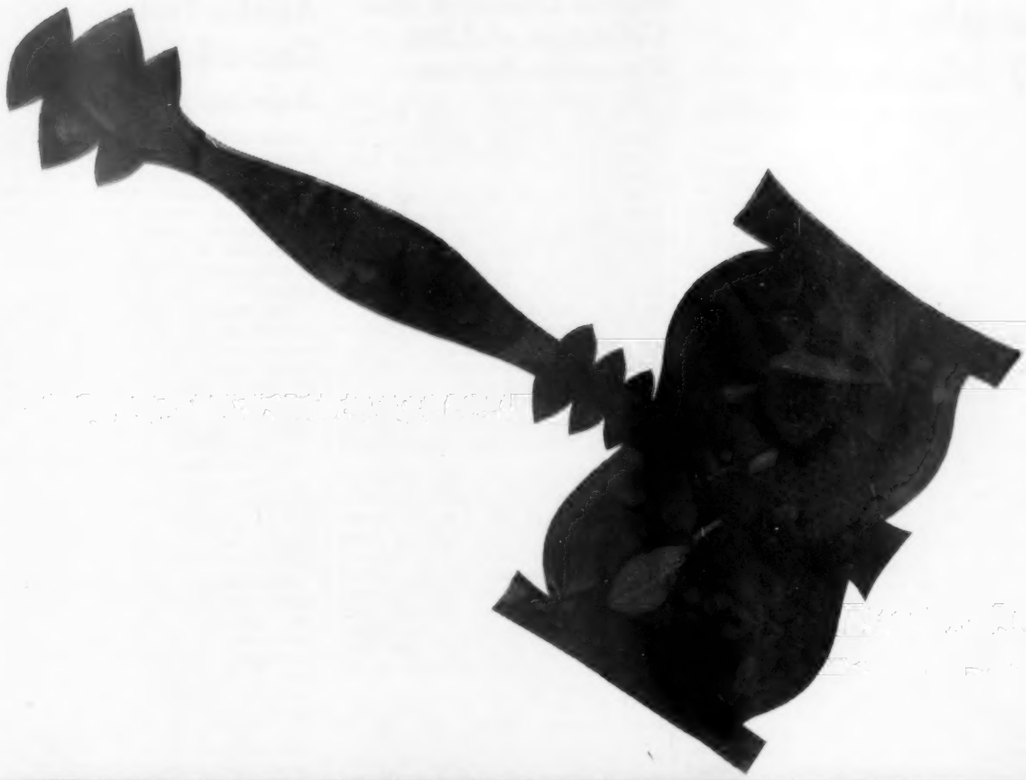

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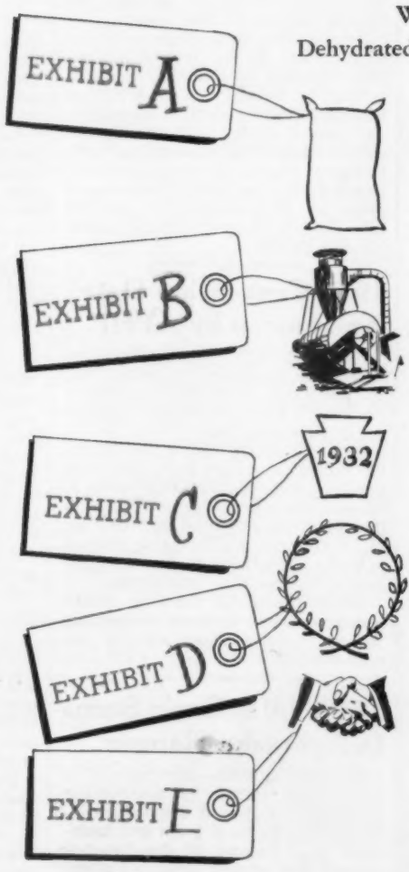

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More Sheep, Lambs Likely For Early 1957 Marketing

WASHINGTON—The number of sheep and lambs to be fed for the winter and early spring market is expected to be larger than last year but slightly below the level of the 1954-55 season, according to the Crop Reporting Board.

The number of sheep and lambs to be fed in the Corn Belt is expected to be up sharply. Feeding operations in the western states are expected to show a moderate decline from the relatively high level of last season, but a few sections will show some increase.

The 1956 lamb crop was 1% larger than in 1955, with most of the increase in the native states. The lamb crop in the 11 western states, South Dakota and Texas was about the same as in 1955. Sheep and lamb slaughter for July through September was about 2% below the same period in 1955, with all of the decrease occurring in September.

Market receipts and estimated federally inspected slaughter for October are up substantially from last year and indicate a July-October total about the same as last year. Ranges and pastures have been dry over parts of the West, particularly in the Southwest, and a large percentage of the western lamb crop has moved as feeders. The movement has also been relatively early, with the average weight per head somewhat below last year.

Corn Belt Numbers Up

Shipments of sheep and lambs into the nine Corn Belt states for which inshipment data are available were about one-third larger than last year during the July-October period. All of these states, except Michigan, show larger inshipments for the July-October period than in 1955. However, the three states of Indiana, Illinois and Nebraska accounted for about two-thirds of the increase. The number of sheep and lambs to be fed in these three states during the 1956-57 season will probably be the largest in several years. The number to be fed in Kansas will be considerably below any recent year.

Dry weather in eastern Colorado, Kansas, Oklahoma and Texas has severely curtailed wheat pasture operations, except on a very limited acreage of irrigated land. The supply of hay and other rough feed in most of the central and southern plains region is below average.

Some Sharp Decreases Noted

Sheep and lamb feeding is expected to be on a reduced level in most of the western states, with the sharpest decreases in Montana and Texas. Present conditions indicate some increase in feeding in Idaho, Colorado, Washington and Oregon. The movement in September and October into the northern Colorado and the Arkansas Valley feeding areas has been very heavy and would indicate a sharp increase. However, the late movement in November and December could be down materially, thus limiting the increase for the season.

Present indications point roughly to the same level of winter feeding operation as last year in California. Some reports indicate a relatively heavy movement of southwestern lambs into the state, including a considerable number of sorted bands of ewe lambs that have been put on pastures and may go either to market or be used for replacement. Lamb feeding in the North Platte Valley of eastern Wyoming and western Nebraska is expected to show considerable increase over 1955. Critical drouth conditions in Texas, with practically no grass on the ranges in the main sheep country during July, August and September, forced an early movement of lightweight lambs. A large number of lambs were moved into the irrigated sections of the Texas Panhandle for feeding on irrigated sorghum stubble or dry land sorghums that were not combined. It is expected that most of these lambs will go into feed lots for finishing and many will probably move on farther north. Some late lambs have been diverted to southern states east of the Mississippi River.

Feed supplies are short in the central and southern plains areas, except in the North Platte Valley and northern Colorado, but are above average in the eastern Corn Belt states. The average price of good and choice feeder lambs on the Denver market for the week ending Nov. 3 was $18.62 compared with $18.98 a year earlier.

Fred C. Nordstrom

RECRUITING DIRECTOR—Fred C. Nordstrom has been appointed college recruiting director for Cargill, Inc., Minneapolis. He will interview mid-year graduates and some spring graduates interested in careers in grain merchandising, hybrid corn and feed sales, plant and elevator operation, research and administration. His first interviews will be conducted at the Universities of Minnesota, Illinois, Indiana, Iowa, Kansas, Nebraska and Wisconsin and at the state colleges of Iowa and Kansas. Mr. Nordstrom is a native of Shenandoah, Iowa, and a graduate of the University of Iowa. He has been with Cargill since 1950.

USDA Buys Turkey, Lard; Makes First Purchase of Pork

WASHINGTON—Initial purchases of canned pork products and additional purchases of frozen turkeys and lard have been announced by the U.S. Department of Agriculture.

The first purchases of canned pork products under the program announced Oct. 30 to help stabilize producer prices through encouraging increased domestic consumption of pork total 442,800 lb. USDA will continue buying pork products on a weekly basis.

Frozen turkey purchases amounting to 3,366,000 lb. were made under the special USDA buying program to help producer prices during the heavy marketing season for this year's record turkey crop. Purchases since first buying in late September now total 24,672,000 lb.

The latest purchase of 3,384,000 lb. of lard brings the total purchases since buying began Oct. 11 to 19,068,000 lb.

The over-all price range on turkeys was 37.3125-39.5¢ lb. Pork luncheon meat was bought for 42.97¢ lb. and canned ham at 62.71¢ lb. Lard prices varied from 16.75-17.99¢.

Purina Employee Has Collection of 3,500 Campaign Buttons

ST. LOUIS—Udell I. Harris, payroll division employee of the Ralston Purina Co., St. Louis, doesn't lack for things to occupy himself in off duty hours.

Mr. Harris for 18 years has pursued the hobby of collecting presidential campaign buttons, beginning with those of Andrew Jackson's era. His collection contains 3,500 items, no two alike, all displayed at his home at 3308 Vista Ave., St. Louis.

The items range from medalettes—or small medals—in use during Andrew Jackson's campaign in 1828 to tintypes, gold and silver bugs, small wooden coffins in which the opposition's presidential aspirant would be reclining, ribbons and a multitude of buttons.

The scarcest years for campaign button collectors are 1920 and 1924. Mr. Harris says that Cox and Roosevelt vs. Harding and Coolidge items are hard to get and so are those of John W. Davis and Charles Bryan who ran against Mr. Coolidge and Charles Dawes. Most collectors feel that this is so because it was during the time when radio first came into wide use and it attracted most of the voters' attention.

Neither are there very many Truman buttons mainly, Mr. Harris thinks, because many people did not feel his chances of becoming president in 1948 were very good. On the other hand, there are plenty of Alfred Landon buttons.

The biggest button year in U.S. history was 1940, not only for number, but variety. More than 100 million buttons were turned out that year, most of them pro-Willkie and anti-third term for Franklin Roosevelt. Mr. Harris' collection includes 300 Willkie buttons, no two alike.

Among the unique slogans imprinted on some of Mr. Harris' buttons are: "Truman Was Screwy to Build a Porch for Dewey"; "We Don't Want Eleanor Either" and "No Royal Family," issued during Franklin Roosevelt's third term campaign; "No Crown of Thorns, No Cross of Gold," issued during the sound money campaign of Bryan-McKinley; and "I Like Ike" in Hebrew, Chinese, Spanish and French.

1957 Convention Date Announced by APHF

KANSAS CITY — The American Poultry & Hatchery Federation has set the dates of its 1957 convention for July 16-19 at the Municipal Auditorium, Kansas City.

The 1957 convention is the hatchery federation's 41st. Last year 5,497 persons attended the APHF show in Minneapolis where a record 204 commercial firms exhibited in 90,000 sq. ft. of floor space. The same amount of space is available at the air-conditioned Kansas City Auditorium.

Exhibit space for the huge hatchery show will go on sale during March. Definite dates will be announced later.

$250,000 in Grain Burns In Nebraska Hangar

KEARNEY, NEB.—Fire believed to have been started by spontaneous combustion destroyed a quarter million dollars worth of grain and equipment in a hangar at the Kearney Airport. The hangar contained about 100,000 bu. wheat and 12,000 bu. soybeans. The hangar was also destroyed.

Ingalls & Turner Grain Co. of Kearney handled the grain storage for the government. Also lost in the fire was a new tractor and two grain augers.

Firemen from the Kearney and the airport fire departments fought the blaze. A wind prevented the flames from spreading to five other hangars, one of which contained fuel.

AFMA Nutrition Council Names Advisory Group

CHICAGO—Eleven allied industry organizations have been named by the Nutrition Council of the American Feed Manufacturers Assn. to comprise an allied industry association advisory committee to the scientific body of the AFMA, according to announcement by W. T. Diamond, association secretary-treasurer.

The advisory committee was authorized by the AFMA board of directors and activated by the executive committee of the Nutrition Council Nov. 7. The advisory committee replaces an associate membership classification which the Nutrition Council originated in 1946.

National associations allied to the feed trade are eligible to seek membership on the advisory committee and to nominate a spokesman who may be elected to serve in an advisory capacity to the Nutrition Council.

Organizations and representatives named by the Nutrition Council to the advisory committee include: American Dehydrators Assn., Joseph Chrisman; American Dry Milk Institute, C. W. Sievert; American Meat Institute Foundation, Dr. O. H. M. Wilder; American Veterinary Medical Assn., Dr. W. D. Pounden; Brewers Yeast Council, Dr. H. S. Wilgus; Distillers Feed Research Council, Dr. L. E. Carpenter; National Cottonseed Products Assn., Garlon Harper; National Fisheries Institute, Theodore M. Miller; National Mineral Feeds Assn., Dr. Harry W. Titus; National Soybean Processors Assn., Dr. H. L. Wilcke; and National Renderers Assn., Ralph Van Hoven.

New Council Members

In other executive committee actions, nine men were elected to active Nutrition Council membership. This brings to 71 the number of feed manufacturers having representation on the Nutrition Council.

Newly elected members and their companies include: Maurice Baringer, Oelwein (Iowa) Chemical Co.; Dr. Edmund Hoffman, Unity Feeds, Inc., Boston; Dr. Max A. Jeter, Indiana Farm Bureau Cooperative, Indianapolis; Emmet B. Johnson, Faultless Milling Co., Springfield, Ill.; Dr. L. E. Mix, Beacon Milling Co., Cayuga, N.Y.; Vincent W. Nielsen, Western Condensing Co., Appleton, Wis.; Dr. H. T. Peeler, Universal Mills, Fort Worth, Texas; F. Gordon Reiners, Ultra-Life Laboratories, Inc., East St. Louis, Ill., and Dr. Charles M. Thompson, The Beardstown (Ill.) Mills Co.

Membership on the AFMA Nutrition Council is available to manufacturers whose programs of active biological research meet certain prescribed requirements. Individuals representing these manufacturers must also meet minimum training and experience requirements. Organized in 1941 with nine nutritionists, the Nutrition Council membership has increased annually, reflecting the growth in stature of the entire industry. The council pursues an intensive program and engages in activities pertaining to all technical aspects of the feed manufacturing industry.

The council will hold its regular semi-annual meeting in Chicago Nov. 25-27 under the direction of Dr. R. R. Spitzer, Murphy Products Co., Burlington, Wis., the current chairman.

IT'S A BOY

CHICAGO — Robert Raymond Sheetz, an 8 lb., 6 oz. baby boy, was born to John Sheetz, New Century Co., Chicago, and his wife Dorothea, at the Community Memorial Hospital, La Grange, Ill., Oct. 26. This is the sixth child for the couple, rounding out the family to four boys and two girls.

Specialists Review Tests on Antibiotics In Cattle Rations

ST. LOUIS — A report from the Ralston Purina Co. says that a review of five years of college and commercial research on the need and value of antibiotics in cattle rations indicates that the question "is still open to debate."

The report says that results to date suggest that the feeder's judgment may be the determining factor as to whether antibiotic feeding to beef cattle pays. It was noted that the value of antibiotic feeding may be related to the animal's health.

The report appeared in a recent issue of the Merchant's Checkergraph, published by Purina for its dealers.

New Mexico A&M College issued a news release citing the Purina report, and in this release it was said that disease or sanitation problems might make antibiotic feeding to cattle profitable in one case, while it might not be profitable in another case where more favorable conditions prevail.

Purina said that a review of results from 49 college tests conducted since 1951, as well as results from its own research farm feeding tests, indicated both negative and positive results.

"In these tests," the report said, "steers on experimental rations received 40 to 150 milligrams of antibiotics daily, and were compared to steers that got no antibiotics. In 30 of the 49 college tests, steers that received antibiotics gained faster than the control group, but in 19 they did not. Averaging all tests together, antibiotic-fed cattle gained 3.94% faster and used 2.53% less feed than the control cattle.

"In one of Purina's tests, antibiotic feeding to a group of cattle with a high incidence of shipping fever cut feed and veterinary costs from $18.60 per 100 lb. of gain in the control lot to $17.78. On the other hand, in an entirely different test, when the same amount of antibiotics was fed to cattle in apparently good health, cost per 100 lb. of gain increased from $18.20 in the control lot to $19.81."

Help Fight TB

Buy Christmas Seals

New Egg Advertising Plan Recommended

CHICAGO — A pay-as-you-go program of advertising eggs, which will be launched in March by the Poultry & Egg National Board with a full-page advertisement in the Saturday Evening Post, has been approved by the shell egg advisory committee and will be recommended to the PENB board of directors for adoption.

The recommendation carries the approval of the 15 egg industry leaders who came to Chicago from all areas of the nation to consider (1) the possibility of PENB's conducting advertising campaigns on eggs as a supplement to its consumer food publicity work, and (2) to study PENB eggs-checkoff plans for financing this expanded effort.

The committee expressed the belief that the timing of the proposed advertising in the Post would encourage consumption of eggs at the critical period of flush spring production, and would enhance the "eat extra eggs" finance and promotion campaign of PENB in March.

At the same time it declared that a continuing program of advertising eggs should be contingent on the success of the first advertisement, and that the PENB consumer-education field should be more fully exploited as rapidly as funds become available.

It also foresaw the feasibility of poultry industry advertising timed to coincide with seasonal surpluses.

PENB'S egg-checkoff plans for 1957 were unanimously approved, with a stipulation, however, that any state or area may modify the plans as deemed best to meet local or regional conditions.

Lee Hammett and Roy Sandburg of Western Advertising Agency, Chicago, presented the proposed program of egg advertising.

E. D. Griffin, Allied Mills, Inc., Chicago, PENB general finance chairman, spoke during the noon luncheon.

Grain Commission Group Changes Name

CHICAGO—The Chicago Association of Grain Commission Merchants has changed the name of the organization to the Association of Commodity Commission Merchants, Robert L. Raclin, president, announced.

The name change was made, Mr. Raclin reported, to reflect the broadened scope of interest of the association. A number of firms dealing principally in edible fats and oils and other non-grain commodities have joined the association since the first of this year.

A total of 48 commission firms now are active members of the association. The purpose of the group is to stimulate greater interest in commodity futures trading.

Officers in addition to Mr. Raclin are Arthur C. Harrison, vice president; Richard M. Withrow, treasurer, and Leonard Paidar, secretary.

USDA Sells Nonfat Dry Milk for Feed Use in U.S., Abroad

WASHINGTON—Sales of 1,047,977 lb. of nonfat dry milk for feed use, and 309,450 lb. of roller process nonfat dry milk for the restricted use of feeding animals and poultry abroad have been announced by the U.S. Department of Agriculture.

The sale of 1,047,977 lb. of damaged nonfat dry milk, found to be unsuitable for human food use, concludes this sales program, USDA officials said.

The sale of 309,450 lb. of roller process nonfat dry milk for export for feed use brings the total sold under this program to 31,961,222 lb. USDA is now selling only roller process nonfat dry milk under this special program, with weekly bids due not later than Friday for consideration by USDA the following week.

Following are details of the sale of 1,047,977 lb. of nonfat dry milk found to be unsuitable for human use:

Mutual Products Co., Minneapolis, 279,069 bbl., 9.38¢ lb.; Mill Specialties, Inc., Dundee, Ill., 70,700 bags, 9.26¢ lb., and M. E. Franks, Inc., New York, 187,241 4½-lb. tins, cartons, 7.21¢, and 510,967 bbl., 9.21¢. (Price per pound in store basis.)

Following are details of the 309,450-lb. sale of nonfat dry milk for restricted feed use abroad:

Trinity Trading Corp., New York, 48,000 lb., 6.30¢ lb., basis f.a.s. New York, to Peru; C. Pappas Co., Inc., Boston, 108,450 lb., 6.16¢ lb., basis f.a.s. Boston, to Switzerland; Lewis J. Stone Co., New York, 45,900 lb., 6.30¢ lb., basis f.a.s. New York, to Peru, and Wickes Export Import Co., Saginaw, Mich., 107,100 lb., 6.21¢ lb., basis f.a.s. New York, to the Netherlands.

For sales listed on a f.a.s. basis, buyers will pay an "in store" price which will be the f.a.s. price less the export freight rate from the storage location to the port, USDA officials said.

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Data Provided on Estimated Feed Use and Supplies for 1956-57

CHICAGO—A clear picture of prospective feed use and supply prospects for the 1956-57 feeding year is provided in data prepared by the College Feed Survey Committee.

The committee, made up of a group of college experts and sponsored by the American Feed Manufacturers Assn., met recently in Chicago to survey the outlook and make predictions for the new feeding year which began Oct. 1.

A story summarizing the committee's findings appeared in the Nov. 3 issue of Feedstuffs.

In addition to that story, feed men will be interested in some of the tabular material which was part of the committee's report.

Table 1 shows the prospective use of grains and other feedstuffs by poultry and the various types of livestock. All uses add up to an estimated total of some 122.7 million tons of concentrates, approximately the same as the total amount fed in 1955-56. Total supplies, as shown by this table, will exceed prospective use by about 24%.

Table 2 shows the amounts of different types of concentrates fed to livestock in 1955-56 and available for feed use in 1956-57.

From this table and from Table 3, it will be noted that prospective supplies of high-protein feedstuffs in 1956-57 will be up from the previous year, largely because of an increase in soybean meal production with the big 1956 bean crop. Table 3, with details on high-protein feedstuffs, supplements Table 2 so far as proteins are concerned.

TABLE 1. Estimated Feed Use and Supplies, 1956-57

Class of livestock	Grains and millfeeds	High protein feeds*	Total concentrates
Estimated use	1,000 tons		
Swine	43,569	2,684	46,253
Poultry	22,650	5,554	28,204
Dairy cattle	20,896	3,000	23,896
Beef cattle	15,445	2,632	18,077
Sheep & lambs	627	167	794
Horses & mules	1,676	....	1,676
Other**	3,462	362	3,824
Total use	108,325	14,399	122,724
Est. supplies Available for feed	137,673	14,425	152,098
Difference, tons	+29,348	+26	+29,374
Difference, %	+ 27%	....	+ 24%

*All high protein feed ingredients are expressed as soybean oil meal equivalent based on 46.0% crude protein. Assigning a value of 1.00 to soybean oil meal, all other high-protein feeds were given a conversion factor based on their crude protein content. These factors are cottonseed meal, 0.89; linseed meal, 0.80; peanut meal, 0.93; copra meal, 0.43; tankage and meat scrap, 1.2; fish meal, 1.35; commercial milk by-products (dried whey, etc.), 0.35; non-commercial milk products, 0.76; gluten feed and meal, 0.72; distillers dried grains, 0.59; brewers dried grains, 0.57, and urea, 5.70.

**Includes miscellaneous livestock in cities and unreported livestock on farms, game birds, fur-bearing animals, dogs and cats, etc.

TABLE 2. Total Concentrates Fed to Livestock in 1955-1956 and Available for Feed in 1956-57 in U.S.

Concentrates	Fed to livestock* 1955-56 Mil. bu.	Thous. tons	Available for feed† 1956-57 Mil. bu.	Thous. tons
Corn	2,389		3,436	
Oats	1,262		1,107	
Barley	231		276	
Gr. sorghums	159		173	
Total		97,400		125,388
Wheat and rye		2,600		2,600
Low-protein by-products		8,750		8,775
Alfalfa meal		1,200		1,200
Animal fats		100		110
Total		100,050		138,073
Adjustment for urea		450		400
Total		109,600		137,673
	Thous. tons		Thous. tons	
Oilseed meals	9,257		10,675	
Animal proteins	2,765		2,725	
Grain proteins	1,525		1,530	
Urea	90		80	
Total (soybean oil meal equiv.)		13,068		14,425
Total concentrates		122,668		152,098

*Adapted from USDA Feed Situation.
†Allows for non-feed uses and assumes end-of-year stocks in millions of bushels; corn 300 and grain sorghums 25, Oct. 1, oats 250 and barley 75, July 1.

TABLE 3 High Protein By-Products Used for Feed, U.S., 1954-55, 1955-56, 1956-57.

Item	Conversion factor	Year beginning October 1954-55	1955-56*	1956-57
		thousand tons		
Oilseed proteins				
Soybean	1.00	5,426	6,167	7,800
Cottonseed	.89	2,405	2,375	2,150
Linseed	.80	488	480	500
Peanut	.93	18	60	50
Copra	.43	182	175	175
Animal proteins				
Tankage, meat scraps	1.20	1,070	1,100	1,100
Fish meal	1.35	308	325	325
Dry milk products	.35	135	105	100
Other milk products	.76	1,235	1,235	1,200
Grain proteins				
Gluten feed and meal	.72	1,005	1,000	1,000
Distillers dried grains	.59	238	245	250
Brewers dried grains	.57	251	280	280
Urea	5.70	80	90	80
Total oil meal equivalent		12,201	13,068	14,425

Adapted from USDA Feed Situation.
*Preliminary.

Topics Announced For Ontario Feed Meeting on Dec. 5

TORONTO — The annual convention of the Ontario Retail Feed Dealers Assn. will be held in the King Edward Hotel, Toronto, on Dec. 5.

Dr. S. A. Herodek, Maple Leaf Milling Co., Ltd., chairman of the milling and grain section of the Industrial Accident Prevention Assn. will address the meeting, taking as his subject "Accident Prevention in the Feed Mill."

J. M. (Jock) Appleton, manager, Greenmelk Company, Ltd., Wallaceburg, and president, Ontario Elevators Assn., is scheduled to give a talk on "The Farm Problem—a Study in Contrasts."

The luncheon speaker will be Howard Gramlich, director of agriculture and forestry development, Chicago & Northwestern Railroad, and his subject is "Common Sense vs. Confusion." Steele Campbell is to give a report on the association's fire insurance program.

Dr. L. A. Wilhelm, manager, poultry feed research department, Quaker Oats Co., Chicago, has chosen as his topic "Eighteen Months, 100,000 Miles and a Few Ideas."

In addition to the speakers a film, "Life From the Land" will be presented. This film was released during the summer, and is made available to the meeting through the courtesy of Cargill, Inc., Minneapolis.

In the evening those attending the meeting will be guests of the grain and allied trades at a banquet and evening of entertainment.

E. O. Fowler

FIELD ENGINEER — E. O. Fowler has been appointed a field engineer for the V. D. Anderson Co., Cleveland. Mr. Fowler has been associated in a supervisory capacity with the Trader's Oil Mill Co., Fort Worth, for the past 18 years. Prior to joining Trader's he was with Swift & Company's Fort Worth refinery division. He is a graduate of Texas A&M College. Mr. Fowler will service oil mills, meat packing and rendering plants for Anderson in Texas, Oklahoma and New Mexico. His home is at Fort Worth.

Albers Milling Opens Missouri Feed Store

ELDON, MO.—The Albers Milling Co., division of the Carnation Co., has established a feed and farm store here. It will be known as Albers Feed & Farm Supply.

The company purchased the stock of Jess Kehr and W. M. Haynes, who formerly operated the Kehr & Haynes Feed Store.

William Sower, who has been with Albers for 10 years, and has had varied experience in poultry and dairy nutrition work, will manage the store. John Julian, a graduate of the University of Illinois college of agriculture, will assist Mr. Sower.

OPENS FEED STORE

GARNER, IOWA—The Frein Feed & Supply Co., owned by Dick Frein, has opened for business in Garner, Iowa.

ROUGHAGE VALUE—The place of roughage in the dairy ration was studied by 25 feed salesmen who came from Minnesota, Iowa, Wisconsin and Nebraska to attend a two-day meeting held by the Archer-Daniels-Midland Co. at Minneapolis. Alfalfa is being handled and discussed in the picture above by John Allquist, Minneapolis, with Bill Day, Madison, Wis. (center), and Charles Lieffring, Durand, Wis. (right). Elmer Ziegenhagen, director of feed sales for ADM, and Ray Piehl, sales manager for the firm's northern feed division, led the discussions. The salesmen also visited the University of Minnesota research center at Rosemount where Ralph Wayne, extension dairyman, outlined new findings in dairy rations.

Bigger State Share In Drouth Relief Costs Considered

WASHINGTON — The possibility that state governments will be asked to assume a larger share of the expense of drouth relief programs has been pointed out by Ezra Taft Benson, secretary of agriculture.

Mr. Benson indicated that the relief program is currently being reexamined with this possibility in mind.

The secretary's comments were part of a talk on the need for reversing a trend toward more federal programs. Addressing the Association of Land Grant Colleges, Mr. Benson said that other farm programs also should be studied to see whether states might take on a bigger part of the cost of various programs.

Referring to the drouth program, Mr. Benson said that the contribution of the states is only a fraction of 1% of the total expense.

He said that money is not spent as wisely as it would be if the states took part financially. Also, he said, people come to look to the federal government as the provider, at no cost to them, of whatever is essential.

USDA Reports Total Acreage Reserve Pay

WASHINGTON — Payments to farmers participating in the 1956 acreage reserve program of the Soil Bank totaled $202,959,759 in 45 states and Puerto Rico reporting through Nov. 9, according to the U.S. Department of Agriculture.

A previous report, covering payments through Nov. 2, showed a total of $181,147,696 disbursed in the 45 states from which reports were received.

In the report on participation in the 1956 acreage reserve program the maximum amount of payments farmers could earn by remaining in compliance with the program was placed at nearly $261 million. Since then, USDA has authorized the termination or modification of 1956 acreage reserve agreements by farmers who misunderstood the terms of the program. Consequently, the total amount to be disbursed under the program is expected to be somewhat under that figure. No reports are available from states to indicate the extent to which farmers who signed acreage reserve agreements will modify or terminate them.

Harry B. Olson Joins Mitchell, Hutchins

NEW YORK — Mitchell, Hutchins & Co., stock and commodity broker with offices in New York City and Chicago, has announced the appointment of Harry B. Olson as manager of the firm's commodity department, eastern division.

A veteran of many years' experience in the feed and commodities business, Mr. Olson was for the last six years director of purchasing for the soy and feed supplements department of the Borden Co.

In his new post, Mr. Olson will be headquartered in the New York office of Mitchell, Hutchins & Co. at 1 Wall St.

Allied Cordage Named Brantford Distributor

BALTIMORE—Allied Cordage Co., 111 Cheapside, Baltimore, has been appointed exclusive distributor in 10 states for the Brantford Cordage Co., Ltd.

The Brantford company's line of twines will be sold by Allied Cordage in Delaware, Georgia, Kentucky, Maryland, North and South Carolina, Pennsylvania, Tennessee, Virginia and West Virginia.

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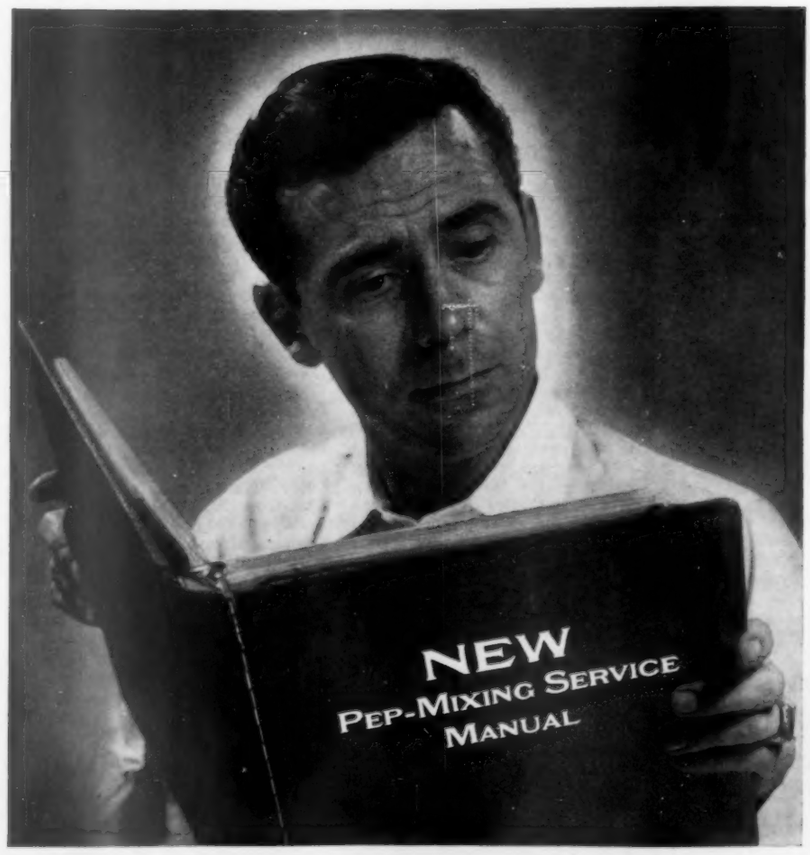

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PALLETIZING BAGGED FEED—These pictures show how bagged feeds are palletized at the Belmond, Iowa, plant of General Mills, Inc. The feature of this system is a jig which makes it possible to put bags on pallets rapidly and in a perfect pile. As shown in the photo on the left, the bags move from the packing line onto a steel table and then are placed quickly onto a pallet which fits into the two-sided steel jig. There are two jigs, one on each side of the table. While a fork truck picks up and takes away a loaded pallet, the man is stacking feed on another pallet on the other side. The second picture provides a view of an empty pallet in the jig on the right side of the table. Standing beside the jig is T. G. Burdsal, Belmond feed plant superintendent,

New Methods of Handling Bulk And Sacked Feeds at General Mills' Plant in Belmond, Iowa

By ROGER BERGLAND
Feedstuffs Editorial Staff

Increased efficiency in materials handling—to go along with today's more automatic feed plant operations and more efficient processing equipment—has been receiving a good deal of emphasis.

At the new feed plant of General Mills, Inc., at Belmond, Iowa, some new methods are in use for handling both bulk and sacked feeds. These methods were adopted in this modern plant to assure efficient plant handling of the finished feeds and to provide the best possible service to the company's Larro Feed dealers.

The mill is a highly automatic one and includes an automatic proportioning and batch mixing system with electronic controls. The finished feeds coming from these modern production facilities are handled in systems developed by the General Mills production engineers.

Bulk Feed System

For handling and storing bulk feeds going out by truck, the Belmond plant uses 1-ton steel bins. The bins are called "Sure-Bins," a term which ties in with the brand name Larro Sure Feeds. A similar system is used in General Mills feed warehouses and in other feed plants operated by the company.

Bulk feed going out by rail is conveyed to the covered car loading station and then flows into the boxcars. But for bulk feed going out in the company's or customers' trucks, the "Sure-Bin" system is used.

The feed comes from the same bin that supplies the packer, and the system is such that the bag packing operation can be continued while the bulk feed is being withdrawn. The feed is spouted into a Sure-Bin resting on a floor scale under the supply bin.

After the bulk bin is filled with a ton of feed, a fork lift truck picks up the loaded bin and takes it to the warehouse for temporary storage or to the loading-out point. The plant has 75 of the Sure-Bins, and the feed thus can be stored in the warehouse, with one bin atop another, for loading out later. In this way there need be no interruption of other plant operations when feed is to go out in bulk.

The Towmotor fork trucks which are used have a rotating carriage. In this way, the bulk bins can be raised and then tipped so that the bulk feed pours into a hopper and short elevator. The elevator raises the feed so that it can be spouted into either special bulk feed trucks or grain-type trucks used for hauling the bulk feed.

The loading unit is located on a truck dock. The fork trucks move directly from the scale or warehouse onto the covered dock and then empty the bins into the elevator. The empty bins are stored in the warehouse for subsequent use.

T. G. Burdsal, plant superintendent, said the system provides complete versatility. The plant makes various types of feed, and these feeds, in any amount from 1 ton and up, can be handled and loaded into the various types of trucks of dealers and the company.

Trucks can be loaded with this system at a rate of 20 tons an hour.

Mr. Burdsal said that the system involves a low initial cost in that the only extra required facilities are the Sure-Bins and the floor scale for loading the bins, plus the simple elevator for loading the feed into trucks. The fork trucks also are used in handling and warehousing finished feeds which are sacked.

Another use of the bulk bins is in holding spilled feed from broken bags.

The system has been in use at Belmond for about a year, and Mr. Burdsal said the company has been very pleased with the results in the plant and in serving Larro Feed customers.

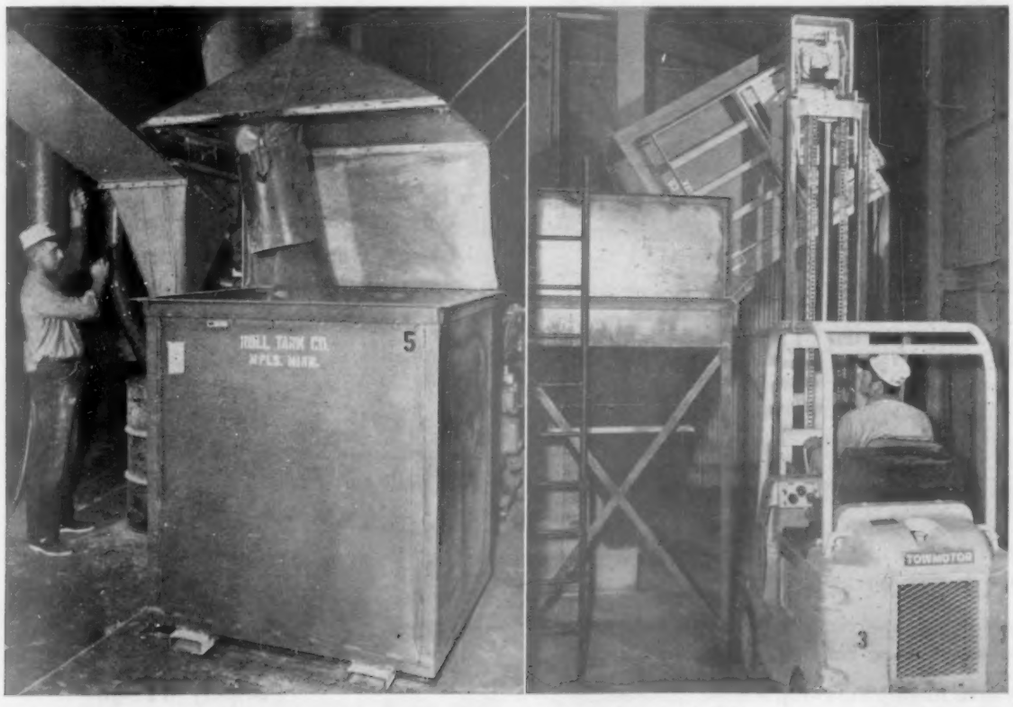
Palletizing Bagged Feed

Another part of the finished feeds handling system at Belmond is the use of a device for palletizing bagged feeds which was designed by Mr. Burdsal. The device is a jig which makes it possible to put bags on pallets rapidly and in a perfect pile.

The bagged feed, coming from the Thayer packing scale at a rate of 17 to 20 bags a minute, moves up a Handibelt inclined conveyor and onto a steel table about 4 ft. high.

There are two two-sided steel jigs, one on each side of the table. Using these, one man can palletize the bags as fast as they come from the packer. The two sides of the jig are at a 90-degree angle, and the pallet, on the floor, fits into this corner. Then the two sides, rising to a height slightly above a pallet load, serve to form a perfect pallet-load as the bags are placed against the sides and piled up. The bags are stacked so that they are interlocked, and the two sides of the jig, holding the stack straight, assure a squared, neatly piled load which has and will hold a good shape for better handling and piling in the warehouse.

The jig makes it possible to palletize the feed quickly. The man at the palletizing station can shift the bags from the table onto the pallet at a very rapid rate, being assured



BULK FEED HANDLING—In the picture on the left, bulk feed is being loaded into a "Sure-Bin" resting on a floor scale. The 1-ton load is picked up by a fork lift truck and taken to the warehouse or to the loading out point. The photo on the right shows feed from one of the bins being emptied into a hopper and short elevator. The fork truck has a rotating carriage so that the bins can be tipped. The elevator raises the feed so that it can be spouted into trucks coming up to this loading out point on a truck dock.

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that the jig will maintain a perfectly piled load.

The two jigs are used alternately. While a fork truck picks up and takes away a loaded pallet, the man is loading a pallet on the other side. The fork truck operator can deposit a loaded pallet in the warehouse or on the loading dock and be back in time to deposit an empty pallet for the next palletized load and take away the newly palletized load.

The pallets are 44-by-60 in., and they are loading with 48 50-lb. paper bags which makes a 2,400-lb. load. While this is not an exact 1-ton unit, Mr. Burdsal points out that it makes it possible to get a 20% increase in use of storage area. A stack of palletized loads in the warehouse is 20% larger than would be the case if there were only 1 ton per pallet. Also, Mr. Burdsal said, the system has worked out quite satisfactorily in filling orders. If necessary, eight bags can be taken off a pallet load to make a 1-ton unit, but in most cases no such handling is necessary.

These systems of handling bulk and bagged feeds have worked out well in the Belmond plant, Mr. Burdsal said, and have provided efficiency in in-plant handling and in serving General Mills dealers.

The plant, located in a midwestern area, makes all types of livestock and poultry feeds and produces feed at a rate of about 13 or 14 tons an hour.

As for the production operation itself, it is interesting to note that only four men are required for the entire operation when feed is being loaded out bulk in rail cars. These include one man unloading ingredients in bulk with a pneumatic system, one man operating the automatic, electronically controlled proportioning and mixing system, one pellet mill operator and one man directing the bulk feed into the boxcar. After once being started, the grinding operation continues, and thus these four men can take care of the unloading, processing and loading out.

USDA Sets Corn Program Vote Dec. 11; National Allotment 37,288,889 Acres

WASHINGTON—Dec. 11 has been set by the U.S. Department of Agriculture as the date of a referendum in which corn producers in the commercial area of the U.S. will decide on the kind of corn program, using either base acreages or acreage allotments, is to be in effect.

USDA officials announced that if the acreage allotment program is in effect for the 1957 crop, the national corn allotment will be 37,288,889 acres for the 894-county commercial corn-producing area in 24 states. The allotment was determined, as prescribed by law, on the basis of corn supplies.

The 1957 allotment covers 54 more counties than the 43,280,543-acre allotment announced for 1956, which was replaced by the corn base acreage provided in the Soil Bank legislation. The share of the 1957 allotment available for the 840 counties which were also in the commercial area this year is about 16% smaller than the 1956 allotment. The extent of the reduction for individual county and farm allotments if the acreage allotment program is in effect will vary from this percentage because of acreage trends, crop rotations and other factors.

If the base acreage program of the Soil Bank Act is in effect for 1957, the national acreage of corn to be apportioned among producers in the commercial producing area will be 51 million acres as set by law.

If base acreages (51 million acres total) are to be in effect in 1957, they must be approved by two-thirds or more of the corn producers voting in the Dec. 11 referendum. If more than one-third of the producers voting favor acreage allotments, (37,288,889 acres total for the commercial producing area) the allotment program will be in effect.

Corn producers will receive notice of both their individual farm base acreages and allotments prior to the referendum. State shares of the acreages under the two programs will be announced later.

Information as to the levels of price support under the two alternative programs and the rates of payment for corn under the Soil Bank program will be announced soon, USDA officials said.

IAPI Picks Progress Theme for 1957 Fact Finding Conference

CHICAGO — "Blueprint for Progress" is the theme around which the Institute of American Poultry Industries will build its 1957 fact finding conference, reports Dr. Cliff D. Carpenter, institute president. The 28th annual meeting will be held in the Municipal Auditorium, Kansas City, Feb. 15-17.

"In gearing workshops to the 1957 theme," said Dr. Carpenter, "we are 'retooling,' 'redesigning,' and 'remodeling' to provide conference-goers with a true blueprint for progress packed with ideas they can take home and put to work."

Five program sessions are planned: Outlook workshop, refrigeration workshop, research and new idea workshop, marketing-merchandising workshop and management workshop.

The exhibition hall will contain an "industry supermarket" and exhibits will occupy more than 50,000 sq. ft.

Another feature of the conference will be the fourth annual junior fact finding conference for 4-H and FFA boys and girls.

Information on hotel accommodations or exhibit space may be obtained from the Institute of American Poultry Industries, 221 North La Salle St., Chicago 1.

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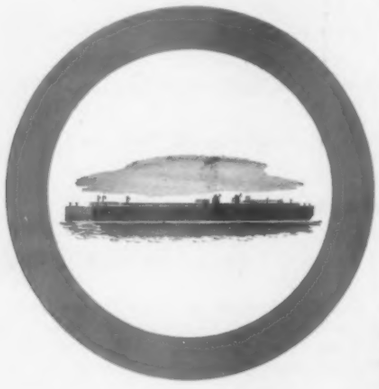

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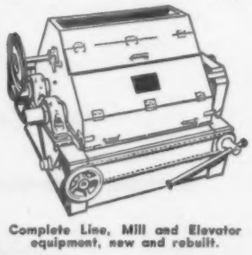

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200 Hear Nutrition Talks At Oklahoma Conference

STILLWATER, OKLA. — Nutritional research information was presented to nearly 200 livestock producers, feed manufacturers and dealers attending the eighth annual Oklahoma Formula Feed Conference Oct. 25-26 at Oklahoma A&M College.

The program, with speakers from Oklahoma and other colleges and industry, included reports on current developments in feeding and management of livestock and poultry.

The conference is sponsored annually by the Oklahoma Feed Manufacturers Assn., Midwest Feed Manufacturers Assn., Oklahoma Grain Dealers Assn., the Oklahoma State Department of Agriculture and the college.

Dr. W. M. Beeson of Purdue University, Lafayette, Ind., in a talk on beef cattle supplements, said that eventually supplements will be as complex in composition as swine and poultry supplements.

To protect and insure cattle against sub-clinical and clinical deficiencies and to make the maximum use of farm and ranch feeds, it is necessary to compound a supplement that will protect "the weak as well as the strong," Dr. Beeson said.

He discussed the formulation of Purdue Cattle Supplement A, noting that it contains the nutrients known today to be essential for maximum utilization of roughage feeds ranging from the poorest to the best. He also discussed various essential nutritional factors and some not essential in beef cattle feeding.

In another report, Dr. Beeson outlined information on the mineral and amino acid requirements of swine. Thirteen mineral elements—calcium, phosphorus, sodium, potassium, chlorine, magnesium, manganese, iron, copper, cobalt, iodine, zinc and sulfur—are required by swine. Only eight are usually critical in natural swine diets and need to be added in a supplement—calcium, phosphorus, salt (sodium and chlorine), iron, copper (only for suckling pigs), iodine and zinc.

Dr. Beeson said results to date on the amino acid requirements of swine permit the following statements:

1. Pigs require 10 "essential" amino acids—arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine—in their diet for maximum growth and development.

2. If the essential amino acids are fed in the proper amounts and balance, the remainder of the protein requirements can be supplied by non-essential amino acids or non-protein nitrogen.

3. Essential amino acids must be fed simultaneously for optimum conversion and use in the body.

4. Crude protein levels necessary to meet swine requirements are based essentially on the ability of the protein supplement to supply adequate amounts of the essential amino acids to balance the diet.

5. The most critical limiting amino acids in swine feeds in order of possible deficiency are (1) tryptophan, (2) lysine and (3) methionine.

6. There is a real possibility of improving swine diets and lowering the protein requirements by supplementing the ration with pure amino acids when they are manufactured in large enough quantities to be economical. Eventually swine diets will be compounded on an amino acid basis rather than crude protein.

7. Amino acid requirements as percentage of the diet are very closely related to the energy or caloric value of the diet as well as the crude protein level.

Feed Tag Analysis

The relation of the feed tag analysis to the nutritive value of feed was the subject of a panel of three speakers—Bob Calvert of Evergreen Feed Mills, Ada, Okla.; Parks A. Yeats, Oklahoma feed control official, and Robert MacVicar, agricultural chemist at the Oklahoma Experiment Station.

Present feed labeling or tag analysis requirements are "misleading, antiquated and valueless," declared Mr. Calvert. He praised control officials but said that the regulations they work with need to be brought up to date with the scientific growth of the feed industry.

"A feed is a vehicle, made up of many components," Mr. Calvert said. "As a parallel—so is a 1957 automobile. Its performance is not measured by percentages of steel, plastic, glass, rubber or aluminum present, but by how they are molded and assembled, their quality and the years of engineering and research behind the development of the product.

"We think all phases of agriculture want to work together in bringing our labeling requirements up to date."

Control Official's View

Mr. Yeats discussed some of the feed tag requirements and said that there are some things which the feeder can tell about the feed by examining the tag. He also noted that there are many hidden qualities directly related to nutritive value that may not be clearly reflected in the tag analysis.

"Although the present feed tag analysis required by feed laws may not be perfect in reflecting the nutritive value," he said, "I believe it is the best word picture (that can be checked in the laboratory) which can be given on the tag of what is actually in the bag.

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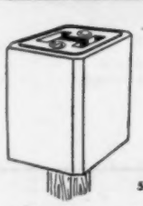
Salt with trace minerals added—Sterling Blusalt—is one feed product farmers don't raise themselves. They have to buy it from feed dealers—and buy it *all year round*—to give their livestock salt and needed protection against trace-mineral deficiencies. What's more, Sterling Blusalt is important on *every* livestock farm in your area. So when you handle Sterling Blusalt, you're assured of steady sales and profits . . . day after day after day.

With Sterling Blusalt, the farmer can also help protect his livestock profits every day in the year. Fed free choice and mixed in custom feeds, Blusalt guards animal health and production—helps provide higher returns in milk, meat, or wool. That's the big reason so many farmers are becoming repeat customers for Sterling Blusalt.

P.S. Your customers are hearing more and more about Sterling Blusalt in a big new "Fun-on-the-Farm" advertising campaign in major feeding areas. Ask your Sterling representative about tie-in possibilities.



• Blusalt is available in 50- and 100-lb. bags, 50-lb. blocks and 4-lb. Liks. Fits *any* feeding program.

Sterling Blusalt is salt plus iodine, cobalt, copper, iron, manganese, and zinc. These trace minerals are stabilized to assure full strength . . . in amounts determined by leading animal nutritionists.

STERLING TRACE MINERAL BLUSALT—*Product of International Salt Company, Inc.*

POWERATOR

The Powerator effectively cools grain in storage, eliminating condensation and spoilage. It keeps grain in top grade and quality.

Uses 110 Volts
Easily Installed
Hundreds in Use

Only $72.50

WRITE GEO. A. ROLFES BOONE, IOWA

Prices reduced on Myvamix® Vitamin E Feed Supplement

On October 26 we announced another reduction in the price of *Myvamix Vitamin E Feed Supplement.*

It is now possible, for example, to add 5,000 International Units of Vitamin E per ton of feed at a cost of only about 43¢ per ton.

When considering formula changes for 1957, you should take advantage of the new low price of *Myvamix* by increasing the vitamin E levels in your present formulas and by adding vitamin E to others.

For information on Myvamix Vitamin E Feed Supplement and quotations based on the new prices, write, wire, or phone ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York, Chicago, and Memphis • Charles Albert Smith Limited, Montreal and Toronto.

producers of ***Myvamix*** *Vitamin E*

DPi

Also... vitamin A ...distilled monoglycerides ...some 3500 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

official alone to decide if the present feed tag analysis requirements are adequate or inadequate or need to be changed. It is, however, our duty to carry out the feed law and regulations for the protection of the feeder and the industry. As progress in nutrition is made and methods developed for control officials to determine correctness in labeling, the control official must be willing to provide a climate of cooperation among research, industry, control and the feeder so that as new labeling needs may arise, adequate and equitable labeling requirements can be set up."

At the present time, said Dr. MacVicar, the typical tag provides less data about the composition of the feed than would be most desirable from the point of view of assessing nutritional value. He went on to discuss certain tag requirements from the chemical standpoint.

"As the feed industry has matured," he said, "there probably has come the kind of self-discipline which makes some of the requirements rather meaningless. . . . As the feeding business become more an organized matter carried on by men trained in the principles of nutrition, the need for more detailed statements of feed composition becomes more apparent. I think the trend is toward more and more data of real significance in evaluating quality appearing on the feed tags in the years ahead."

Potential of the Atom

Dr. Roy Chatters, coordinator of the Oklahoma A&M Radioisotopes and Radiation Laboratory, explained the potential that the atom may offer to the feed industry.

When the atom becomes unstable in composition, he explained, it will emit radiations which are readily detected and measured. These are the radiations used in biological and other research. They are employed as tracers which are used in research.

Many research problems, Dr. Chatters said, lend themselves to the use of the radioactive (tagged) elements. As an example, he explained the tracing of estrogenic substances in the chicken. Another example, in poultry, is in determining the utilization of calcium and phosphorus by tagging compounds used in feed and tracing them to various parts of the body and into the egg shell itself.

Cage Layers

The advantages and disadvantages of cage layers as compared with floor layers were outlined by Dr. Cletis Williams, Honeggers' Farms Co., Inc. Advantages and proposed advantages which he mentioned include higher egg production, better feed efficiency, lower mortality, elimination of broodiness, no social order, higher quality eggs, more efficient marketing of culls, uniform egg production, positive culling. Disadvantages include a higher initial investment in some areas, possibly more cracked eggs, more labor cost, fly problem, possibly more disease problem.

Dr. Williams' management recommendations for cage operations included purchase of top quality chicks or pullets and top quality feed, small body size for layers, constant supply of replacement pullets needed, proper feeders and waterers.

Dr. Ralph P. Soule, Jr.

JOINS PFIZER—Dr. Ralph P. Soule, Jr., has joined the staff at the 700-acre agricultural research and development center operated by Chas. Pfizer & Co., Inc., at Terre Haute, Ind. Dr. Soule will serve as a member of the center's development staff. Until recently he was assistant professor of animal husbandry at Kansas State College, Manhattan. He received B.S. and M.S. degrees in animal husbandry from Michigan State University in 1948 and 1950, respectively. This year he received a doctorate in animal nutrition from Kansas State College.

Beef Production

New developments in Oklahoma beef production were covered by Dr. L. S. Pope of the Oklahoma A&M animal husbandry department. He said that perhaps the biggest problem is to develop more productive systems of management which allow the producer (1) to market his roughage and some grain through beef cattle as efficiently as possible, and (2) to produce the most valuable market animal from each calf dropped in the herd.

Dr. Pope cited examples of recent research that applies to these problems. He pointed out that it is the feed manufacturer's business, as well as the producer's job, to stay abreast of new changes in beef production.

Dr. H. C. Olson of the Oklahoma dairy department outlined certain factors in assuring quality milk production, such as prevention of deterioration and avoiding off-flavors caused by certain feed materials.

Poultry Housing

Dr. Glenn O. Bressler of the Pennsylvania State University poultry department described the solar poultry house developed at Penn State, explaining, among other things, how pullets can be housed at 1 sq. ft. of floor space per layer. He said accomplishments in the solar house have opened new horizons for efficient production of market and hatching eggs, as well as for broiler production.

The solar house has four main features: (1) Orientation of the house due south to take full advantage of sun heat, (2) complete insulation, including insulating glass windows to conserve heat, (3) pressurized-inlet ventilation to provide an air change every four to five minutes, and (4)

(Continued on page 94)

Tenox BHT
AGRICULTURAL GRADE

Eastman's new Tenox BHT-Agricultural Grade has been especially developed to meet the needs of feed manufacturers. This new form of Tenox BHT is supplied as a free-flowing, non-dusting powder, in a particle size comparable to that of other feed components. It blends rapidly and homogeneously in mixing operations, and does not separate during handling or storage.

Although Eastman has had many years of experience in food antioxidants, we did not rely on this alone in developing Tenox BHT-Agricultural Grade. We talked to feed manufacturers, asking them about their storage problems... their blending machinery and methods... their preference in particle size. Only then did we complete the development work on Tenox BHT-Agricultural Grade, giving it the free-flowing, non-dusting, non-caking characteristics manufacturers wanted.

When you add Tenox BHT-Agricultural Grade to your feeds, you protect their sensitive vitamin content. At the same time, you help poultrymen improve pigmentation and guard their flocks against deficiency diseases such as encephalomalacia.

Since this form of Tenox BHT *is* new, be sure you specify "Agricultural Grade" when ordering. For additional information concerning Tenox BHT-Agricultural Grade, and how you can use it in the feeds you make, write to EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Massachusetts; Cincinnati; Cleveland; Chicago; Houston; St. Louis. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

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NEW FROM DU PONT...

CERESAN®

SEED DISINFECTANT

LIQUIDS

These new Du Pont liquids offer the seed protection you've been looking for!

- POWERFUL DISEASE CONTROL
- SUPERIOR TREATING ECONOMY
- EFFICIENT HANDLING QUALITIES
- COLORS SEED RED

No seed protection yet developed can surpass these new liquid products in assuring maximum efficiency from slurry, ready-mix or mist-type equipment. They provide exceptional control of disease organisms on seed . . . eliminate objectionable odor—as well as dust. Your employees will find "Ceresan" liquid disinfectants much more pleasant.

You get superior performance and economy with any one of the new "Ceresan" liquids. They are convenient to use . . . help speed up treating. Being complete solutions, they won't settle out. And all 3 formulations put a stronger, more uniform red color on seed.

Longer equipment life is another economy you get. "Ceresan" liquids keep corrosion to a minimum. They're also non-freezing (to minus 40° F.), and stick tight to seed for lasting control.

Take advantage of Du Pont's 30 years' experience in seed protection. Order the "Ceresan" liquid seed disinfectant designed for smooth, extra-profitable operation in your equipment.

NEW CERESAN 75

. . . for ready-mix (fully automatic) treaters. Ready to use. Controls seed- and soil-borne disease on wheat, oats, barley, rye and flax. Also furnishes volatile mercury to assure penetration that completes the job . . . disease control that reaches cracks and hidden crevices.

NEW CERESAN 100

. . . for use in slurry treaters or mist-type ready-mix treaters. For outstanding control of seed disease, before and after planting—on cottonseed as well as seed of wheat, oats, barley, rye and flax. "Ceresan" 100 mixes readily with water, or use it undiluted in mist-type equipment.

NEW CERESAN 200

. . . made especially for slurry operators who prefer a concentrated liquid disinfectant. Controls stinking smut of wheat and diseases of small grains and flax. On cottonseed it helps boost yield by stopping seed decay, sore shin, angular leaf spot and anthracnose boll rot.

All "Ceresan" liquid seed disinfectants contain two types of mercury—for correct volatility and long-lasting effectiveness.

On all chemicals, always follow label instructions and warnings carefully.

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Department
Wilmington 98, Delaware

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BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

CERESAN® LIQUID
Seed Disinfectants
The "Magic Key" to Bigger, Better Crops!

The Relationship of Disease to Nutrition

By Dr. Morris Erdheim

EDITOR'S NOTE: In a talk presented at the recent meeting of the Association of American Feed Control Officials, Dr. Morris Erdheim, Dawe's Laboratories, Inc., discussed the impact which animal and poultry disease problems have made on feed nutrition. In leading up to the discussion of this impact, Dr. Erdheim explained the effects of diseases on appetites of livestock and poultry and how they upset feed utilization. The text of Dr. Erdheim's address follows:

v v

The relationship of disease to nutrition is generally discussed from the other point of view—the effect of nutrition on disease. Both are equally meaningful in the raising of livestock economically.

Before getting into the relationship between disease and nutrition we might recognize that under normal farm conditions all animals are infected with some degree of disease.

In a very real sense we are now feeding animals with varying degrees of disease under practical field conditions. The estimates of nutritional requirements of animals in the field make allowances for the varying amounts of infectious organisms which they are carrying and supporting. This means that formula feeds designed to produce results under field conditions are made up to permit the animal to make gains, even though he's carrying a germ load.

"Low grade infection" is a phrase loosely used in connection with management. Yet, except under germ-free conditions of very special laboratories, all animals have "low grade infection." The disease producing germs are kept in check by so-called anti-stress factors and a nutritional state which is geared to take care of them.

How disease seems to increase the nutritional requirements of animals can be seen in a report from the Texas Experiment Station at Gonzales. Two groups of birds were on test—one on a feed with normal levels of vitamins, the other on higher than normal levels. CRD struck these broilers at six weeks of age. The group on the high level vitamin feeds averaged 3 lb. body weight 10 days sooner than the group on normal vitamin levels.

Apparently, the CRD could be overcome more readily with the increase in vitamin fortification.

A phrase which is commonly used in discussing disease conditions under average farm conditions is "secondary invaders." This refers to disease germs which the body normally carries. These germs are usually held in check by the body defense mechanisms when the animal is relatively healthy. When the defense mechanisms are "overwhelmed," these disease germs do damage.

A specific illustration is found in respiratory infections. These frequently involve infection with a virus, which is the primary disease. The condition is aggravated when the secondary invaders come into play. They cause the specific inflammation of the larynx, pharynx, bronchi, and bronchioles. If the infection progresses enough, a pneumonia may develop.

How does the body "run down" to permit the overwhelming of its normal defense mechanisms? This is a very complicated subject, but a review of the stress and anti-stress factors may help give us an understanding of the basic picture.

Several Stresses Present

Disease is but one of the stresses to which the animal is subjected. Some of the others are related to management problems—poor housing, rough handling, overcrowding and inclement weather. The animal can normally compensate for some of these, but when he's subjected to many, his defense mechanisms are overwhelmed and he breaks down. It is at this stage that disease does damage.

We can help overcome the harmful influences of these stresses by the application of anti-stress factors in two areas—management and nutrition. The animal is thus relieved of the pressure from these stresses and is able to make economical gains.

Improvement of management practices obviously removes the harmful stresses caused by poor housing, rough handling, etc. Nutrition, however, supplies nutrients which help the body mechanisms withstand the pressure of the stresses which are not affected by improved management.

We know that some of the vitamins are important in preventing the development of disease. Vitamin A keeps the mucous membranes healthy which keep the organisms from invading the body tissues.

The members of the B complex are important in keeping the body's disease fighting mechanisms functioning. For our purpose here, the biochemical reactions which may be involved are not important. All we need concern ourselves with is the importance of the vitamins in helping the animal withstand the attacks of disease germs.

We now have reached this point in our presentation. All animals are subjected to some degrees of disease under normal field conditions. Other stresses with which they are con-

Watch your UNDERWEIGHTS
—or you'll lose your friends and ruin your sales!

Underfilled packages lose customers, overfilled packages lose profits. *You can get accuracy* without sacrificing speed. The 1000N2 Thayer Filling Scale is designed to be accurate within one or two ounces while filling mash or pellets at 20 charges per minute — molasses or alfalfa at 16 per minute . . . and it can be switched from one type to another without loss of accuracy. Automatic controls are within reach of the operator who can change the scale from 25 to 100 lbs. or other weights instantly.

THAYER PLATE LEVERAGE SYSTEM
GUARANTEED ACCURATE FOR LIFE

We invite your investigation of this simple, patented leverage system that *neither dust and dirt nor the usual shocks and vibration can harm.* Please write THAYER SCALE AND ENGINEERING CORP., ROCKLAND, MASS.

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Charles A. Howe

SUPERINTENDENT — The appointment of Charles A. Howe as factory superintendent has been announced by officials of the Brower Manufacturing Co., Quincy, Ill. Mr. Howe was born and raised in St. Louis. He studied at St. Louis University and Washington University, St. Louis, and has been associated with the International Harvester Co., the Vickers Electric Division of the Sperry Corp.; the McQuay Norris Manufacturing Co., Navy Division, and the E. E. Souther Iron Co.

stantly bombarded help lower resistance, which makes it easier for the disease germs to do damage. Good feeding practices provide anti-stress factors by supplying those nutrients which help the body's defensive mechanisms operate. Moreover, our practical rations provide the extra nutrients needed to compensate for the conditions normally found in the field. To this extent, sound nutrition keeps the disease from expanding.

Now we can turn to the question of how disease affects nutrition. This may happen in a number of ways.

1. Deficiency diseases—in which a nutritional element or combination of elements is missing from the ration.
2. Loss of appetite.
3. Interference with normal metabolism which prevents the animal from utilizing the feed efficiently.

DEFICIENCY DISEASES: Immediately obvious as a disease condition with causative influence on nutrition is malnutrition. You are all familiar, of course, with deficiency diseases and that they are prevented by balanced diets. We must supply the animal with enough of each nutrient to satisfy his requirements. In so doing, we must also adjust for a variety of conditions, each of which varies the animal's requirements.

A layer needs more calcium than a broiler. If she were limited to the calcium supplied by a broiler ration, she would not be able to produce the heavy volume of eggs with normal eggshells. There is some work to suggest that layers on high energy feeds may need more choline than had been heretofore used—to prevent the development of a fatty liver condition.

LOSS OF APPETITE: Another facet of malnutrition is the starvation accompanying disease. Sick animals lose their appetites and eat less. Specially fortified diets must be prepared to increase the animal's intake of essential nutrients to compensate for the loss of appetite. This is the basis for highly fortified booster rations fed to sick stock.

INTERFERENCE WITH NORMAL METABOLISM: **(1) Pathological conditions** in the body may require the use of special diets. Thus, we have low calorie diets for the obese, low salt diets for the cardiac patients, and low sugar diets for the diabetic. These all represent dietary adjustments made necessary by pathological conditions in the body. Special diets for dogs with kidney disease, intestinal disease and too much body fat are being prescribed routinely by veterinarians.

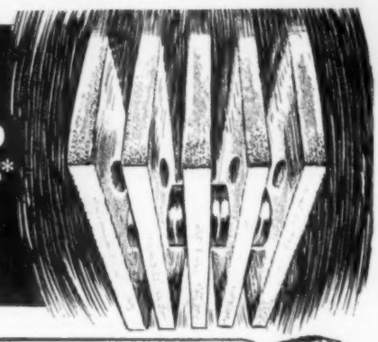
Pathological changes may prevent the absorption and utilization of nutrients. Disease which damages the mucosa of the stomach and intestines prevents absorption of nutrients. Since these nutrients are not utilized, nutritional deficiencies result as though the nutrients were not in the feed in the first place.

(2) Specific disease conditions sometimes affect metabolism which may result in unusual nutritional demands.

Internal parasites represent a spe-

(Continued on page 22)

Because they *cut* grain...
PACAL HARD-FACED HAMMER CLUSTERS*
grind up to ten times longer



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DALPAC* ANTIOXIDANT For Poultry, Animal Feeds

New feed grade Dalpac BHT is controlled by Hercules Powder Company through all stages of manufacture—from the raw material to the finished product. That's one of the important reasons why you can depend on Dalpac for consistently high quality. Finely ground and non-dusting, Dalpac antioxidant is easy to process, and will be well dispersed throughout the feed.

Dalpac quality BHT protects fat-soluble vitamins A and E and other essential nutrients in feeds during long periods of processing and storage. In poultry and animal feeds, Dalpac assists in achieving complete utilization of these nutrients, improving health, pigmentation, and growth.

Both the manufacturer of feeds and the farmer will find that Dalpac BHT has the characteristics he wants. Specify Dalpac—the antioxidant from a company that's basic in BHT.

Dalpac is available nationwide from:
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"BRODLEAF"
HOLLAND PEAT MOSS
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Double Your Tonnage!

Triple Your Profits!

WITH

Beloit Grain Company
Beloit, Wisconsin

This is one of a series of ads featuring good businessmen who have doubled their tonnage with the Honegger Program.

Exclusive territory franchises still available in some areas. Some aggressive dealer will double his tonnage in your area with Honeggers' Big "H" Feed Franchise. It might as well be you!

Watch this series of Ads featuring Good Businessmen who have doubled their tonnage with the Honegger Program.

BELOIT GRAIN COMPANY
BELOIT, WISCONSIN
458 St. Paul Avenue Phone: Emerson 2-2056
FEEDS - CHIX - FARM BUILDINGS - GRAIN

October 15, 1956

Mr. Le Rolf, Sales Manager
Honeggers' and Company, Inc.
Fairbury, Illinois

Dear Mr. Rolf:

After a most successful year in which our feed business mounted to proportions that pleasantly surprised us, we would like to thank Honeggers' for the service, courtesy and assistance they have given us.

As each month rolls by, and we see sales continue to climb, with new customers – and old customers, too – prospering, we feel that it was indeed a wise choice we made when we became a Honegger Dealer.

Respectfully yours,

L. Berg

L. Berg
Beloit Grain Co., Inc.

HONEGGERS' CAN TRIPLE YOUR PROFITS!

THE HONEGGER PROGRAM

WHAT OTHERS HAVE DONE...YOU CAN DO ALSO; WITH HONEGGERS' COMPLETE PROGRAM

HONEGGER FEEDS

Honeggers' offer a complete line of feeds and complete feeding programs that help increase your tonnage. The Honegger line is a "profit-package" backed by continuous research and a rapidly increasing number of enthusiastic users.

HONEGGERS' "EGG FACTORY"

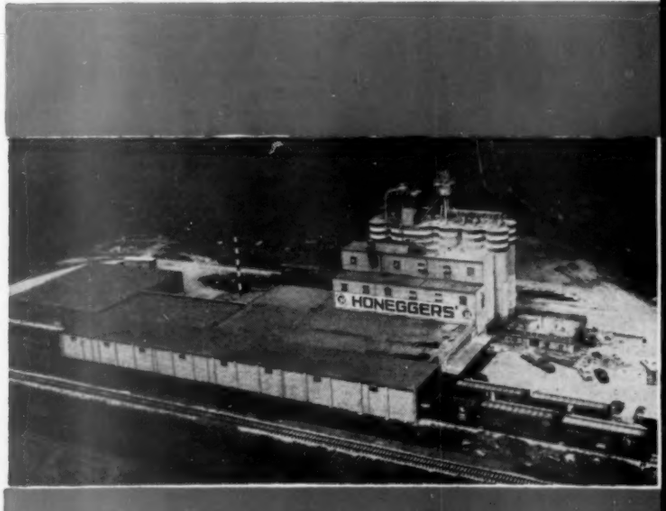
Each dealer receives a franchise to sell Honeggers' exclusive "Egg Factory" program in his area. This is a plan featuring the nationally famous Honegger Leghorn, the Honegger Poultry House and other Farm Buildings and Honeggers' feeds for all livestock and poultry. What a natural for increasing tonnage and profits! Remember, in only a year's time, 500 birds will eat a carload of feed.

HONEGGERS' LIVESTOCK AND POULTRY EQUIPMENT

With Honeggers' wide variety of dependable livestock and poultry equipment, and accompanying farm supplies, Honegger dealers have a source of supply which features unequalled dealer service. Your customers will come to depend on you as their one-stop dealer for all poultry and livestock programs.

HONEGGER FARM BUILDINGS

Honeggers' line of pre-built farm buildings are an extra profit plus. There's no additional investment on your part . . . and what a perfect tie-in for your livestock and poultry feed business.



Honeggers' modern feed mill near Fairbury, Illinois, features electronic controls for speed and accuracy, with "push-button" ingredient selection and all bulk handling throughout the plant for top efficiency and economy.

The 600 acre Honegger Research Farm, where practical feeding, management and disease control practices are developed and demonstrated. Dealers find that a tour of Honeggers' by customer prospects really helps sell them.

WRITE, PHONE OR WIRE COLLECT FOR COMPLETE DETAILS

HONEGGER Leghorns

HONEGGERS'

BIG H FEEDS

FEED & MILLING DIV., FAIRBURY, ILL. • BREEDER HATCHERY DIV., FORREST, ILL.

cific disease condition which affects the nutrition picture of the host animal. Worms rob the host animal of feed. Unless additional feed is made available, we have a literal underfeeding as far as the host animal is concerned. In the case of blood-sucking worms, the net result is the same since the products of digestion are being robbed. Wisconsin workers reported two years ago that nematodes cause a marked drop in the vitamin B level in the blood of lambs.

Internal parasites may also interfere with metabolism in another way. They prevent the efficient conversion of carotene to vitamin A. Eveleth of North Dakota made this observation in lambs infected with nematodes. It may very well be that parasite infection is one of the reasons why ruminants are relatively poor converters of carotene. This means that unless ruminants are getting large amounts of good quality roughage or grain with high carotene content, they will suffer from subclinical vitamin A deficiency unless the ration is fortified with an insurance level of vitamin A.

(3) Drugs may interfere with metabolism, too. Years ago, the standard treatment for coccidiosis was the use of flowers of sulfur. Sulfur was a fairly effective treatment, but it prevented the utilization of vitamin D. This interference with vitamin D utilization resulted in rickets—popularly referred to as "sulfur rickets." This occurred even though the vitamin D was in the feed.

At present, pathologists run into poultry problems in the field which show typical symptoms of rickets. The feed is well supplied with vitamin D, and the birds may be on range in the sunlight. There would seem to be no reason for rickets to develop. Yet it does. Apparently something interferes with normal bone metabolism. Some of the medicinal additives have been suspected as being involved—much as the sulfur used to be. While no general pattern has developed to pinpoint any specific cause, it appears that something is interfering with the utilization of vitamin D, and/or calcium and phosphorus.

Another condition which affects the nutritional requirements of poultry ought to be mentioned. A number of reports from various sections of the country suggest that a pathological picture resembling coccidiosis may be caused by a parasite—Capillarria columbiae. The only effective treatment seems to be the addition of vitamin A (about 6,000 units per pound of feed) above the 4,000 units or so which the feed normally contains. The vitamin A does not work as a worming agent. Why the vitamin A requirements of the birds should be increased so much by this parasite is not yet known.

Growing Use of Medicants

Probably the most important impact disease problems have made on nutrition as applied to the formula feed industry, is the addition of medicants to feeds. These serve to minimize the existing disease problems. That this trend is continuing is obvious. That it's been the cause of many problems to a number of groups is well known to you. The problems are many and varied.

Field of Treatment

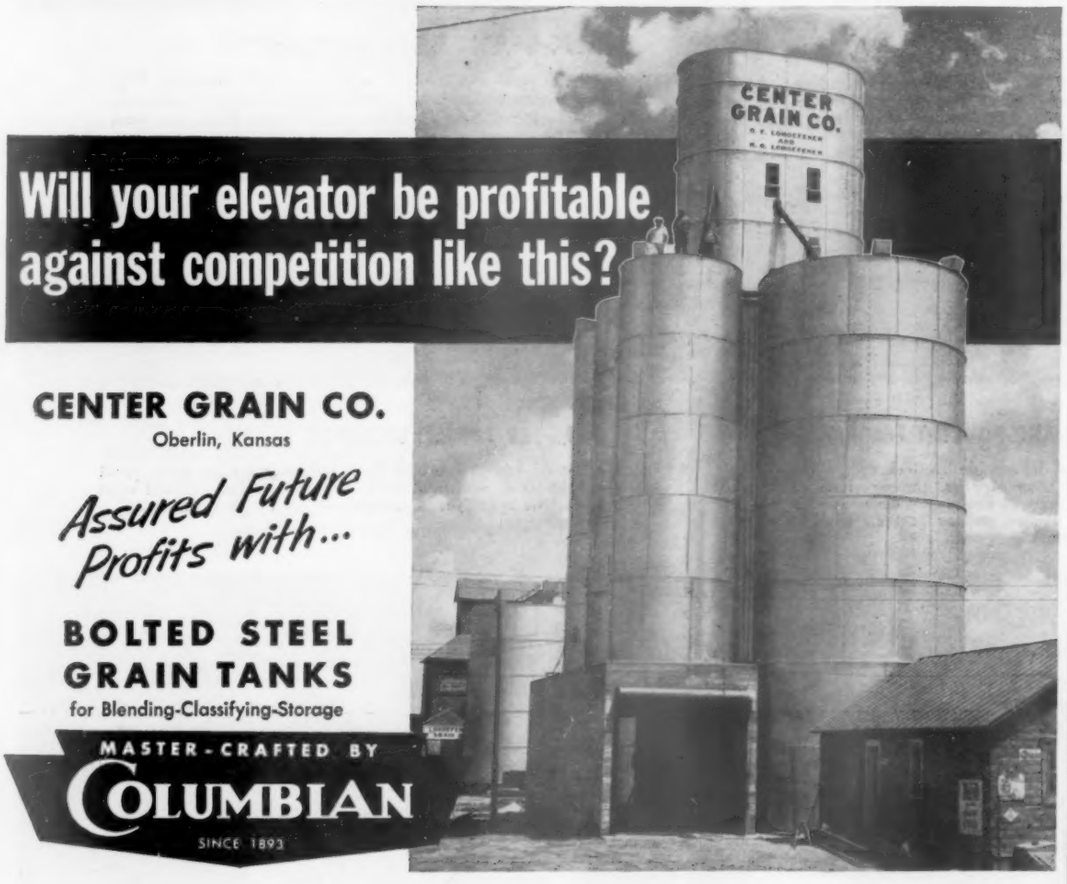
Veterinarians are concerned about feed people getting into the treatment field. Feed manufacturers are forced to carry an inventory and handle potentially dangerous drugs with which they are unfamiliar. You people in positions of trust to protect the agricultural interests in your respective states are concerned about this new activity. There are problems in testing the feed—finding qualified technicians to do the work, does the feed have enough and not too much, tags, exaggerated claims, etc. All this is on top of the usual problems associated with registration and supervision of feed manufacture.

The farmer, too, has real cause for, and is the cause of, much confusion. He is constantly bombarded with stories in the popular farm press about something new which will help him perform miracles. He doesn't know enough to appreciate that these stories represent "preliminary" findings which may be interesting but not immediately practical. It's little wonder then that you are under steady and constant pressure to permit the use of these "miracle" ingredients in the feed long before they've been proven to be effective and safe.

Frequently feed manufacturers are placed in a position where they must include these additives in their feeds

Robert L. Robinson

IN CHARGE—Robert L. Robinson has been appointed special projects leader with the agricultural sales division of Chas. Pfizer & Co., Inc., J. Jerome Thompson, director of the division, announces. Mr. Robinson will have charge of special promotion projects as they are developed by the agricultural division. Prior to joining Pfizer, Mr. Robinson served as farm line manager for the J. R. Watkins Co., Winona, Minn. He also worked for two years as a field man for the Iowa Farm Bureau Federation and served as assistant to the president of Vitamized Feeds, Fort Dodge, Iowa. He is a graduate of Iowa State College.



Will your elevator be profitable against competition like this?

CENTER GRAIN CO.
Oberlin, Kansas

Assured Future Profits with...

BOLTED STEEL GRAIN TANKS
for Blending-Classifying-Storage

MASTER-CRAFTED BY COLUMBIAN
SINCE 1893

Center Grain Co. faced this problem — an old elevator to which three fine Columbian Bolted Steel Tanks had been added in 1954. Now the management took a New Look — and called in Columbian engineers. The result, a completely new grain handling facility—four new 21′ x 56′ storage tanks, combined with three 12′ x 40′ blending tanks built over an overhead driveway for fast and efficient operation. Handling equipment is in the handsome obround headhouse. The three Columbian tanks bought previously provide the extra storage — the old wooden elevator remains for bumper-crop emergencies.

It is modern country elevators like that of Center Grain Co., at Oberlin, Kansas, which will be the most profitable in the future, because they can provide quick and efficient grain blending and classifying and can handle a customer's distress grain.

If your country elevator hasn't such facilities, it is time to take that New Look and keep up with competition. All-steel, fire-safe, rot-and-vermin-proof Columbian Bolted Tanks are your best investment for faster, longer profit. They make it easy to conform to the stringent regulations of the new Federal Grain Sanitation Program.

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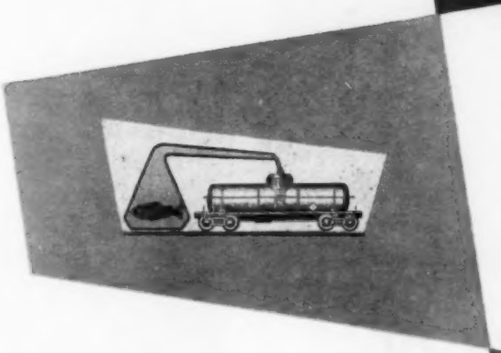
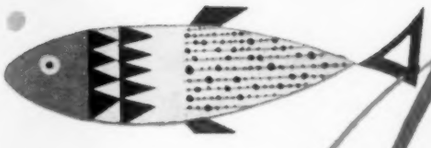
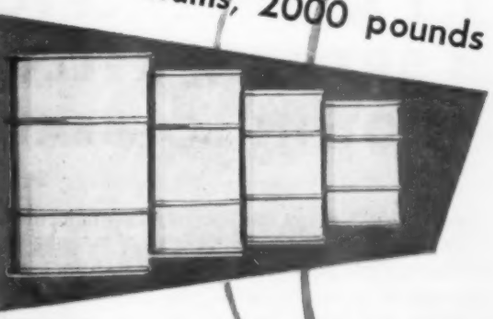




1946 . 4 drums, 2000 pounds



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even though they are personally not yet satisfied that the addition makes sense. But they are afraid to "buck" the trend.

We recall the early days of stilbestrol when a number of our feed manufacturing friends in the midwest didn't want to use the material just yet. They weren't satisfied that it was free from danger. Yet, they all added a stilbestrol line simply because the "others" were doing it. This illustration is not used to challenge the advisability of using stilbestrol in modern cattle feeds. Its record is too impressive for that. We should recognize though that the feed manufacturer is subjected to some of the same kind of pressures that you are in this medicated feed field.

Some kind of education program directed to editors of farm publications, farmers and industry might be in order to keep these reports in proper perspective.

Jurisdiction in Question

Another problem which seeks a solution is the relationship between feed control officials and the drug control officials in the matter of jurisdiction over medicated feeds and ingredients.

Some time ago, the veterinary association and pharmaceutical association in one of our larger states sent a joint committee to the attorney general of the state for a ruling on the definition of "dangerous drugs." The drug act of the state included antibiotics as dangerous drugs not to be sold without a prescription. The attorney general ruled that according to the statute crude antibiotics must be considered in the dangerous drug category. That would seem to mean that no manufactured feed containing antibiotics could be sold without a prescription.

The word prescription brings to mind yet another problem. If a veterinarian wants to write a prescription for a feed to have an unapproved medicament included for a special case, how would you react as an individual feed control official?

This question was presented to me by practicing veterinarians, and I checked with feed control officials in two different states. One said, "that would be a custom mix which our laws don't cover." The other said, "if it goes into the feed, it's an ingredient and it better be an approved one—or else." The ingredient in question was penicillin for the control of bloat in cattle. The veterinarians wanted to put some herds on a bloat prevention program based on penicillin in the feed. There was no question about the veterinarian's being allowed to dispense the penicillin to the farmer for home mixing. There was at least one challenge to his right to write a prescription to have it included in the feed.

With the growing interest of the veterinary practitioner in nutrition, it might be worthwhile for your group to consider "prescription feeds" and develop a practical policy.

These problems and the others will be resolved. The many joint meetings held between interested groups have already produced results. Members of all these groups benefit by improvement of the livestock owner's lot. We're all learning how to help without stepping on each other's toes.

ATTENTION-GETTER—The Guth Feed Store, 700 Block East Camp St., East Peoria, Ill., is using some unique advertising to attract attention to the products it handles. This consists of painted posters attached to waste paper containers in downtown Peoria and in various shopping centers in the city. The containers are owned by an advertising agency but the city removes the waste paper. The agency turns the containers a quarter way around each month in order to give each of the four advertisers the same advantages of position. The ads are visible to both motorists and pedestrians.

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"Today's coccidiostat must shoulder more of the load!"

a message from HESS & CLARK, Inc.

To the feed industry:

We at Hess & Clark have long felt that feed medications should contribute to overall feed performance while they fight disease. We believe both you and your customers have a right to expect such results . . . *must* have them, in fact, to maintain profits in the face of today's more competitive situations.

With the announcement of bīfuran, the new coccidiostat developed by Hess & Clark, this policy of "disease control . . . *plus*" assumes special significance. After all, coccidiosis is not the broiler grower's only problem. His big problem is unit cost of production — his coccidiostat should help him produce more meat at less cost. We believe you and your growers will find bīfuran to be the most profitable coccidiostat you have ever used.

Bīfuran, a specific combination of nitrofurans, already has soundly proved its effectiveness in coccidiosis control. And it has demonstrated unmatched benefits by improving feed conversion — maintaining broiler growth while fighting off secondary infections.

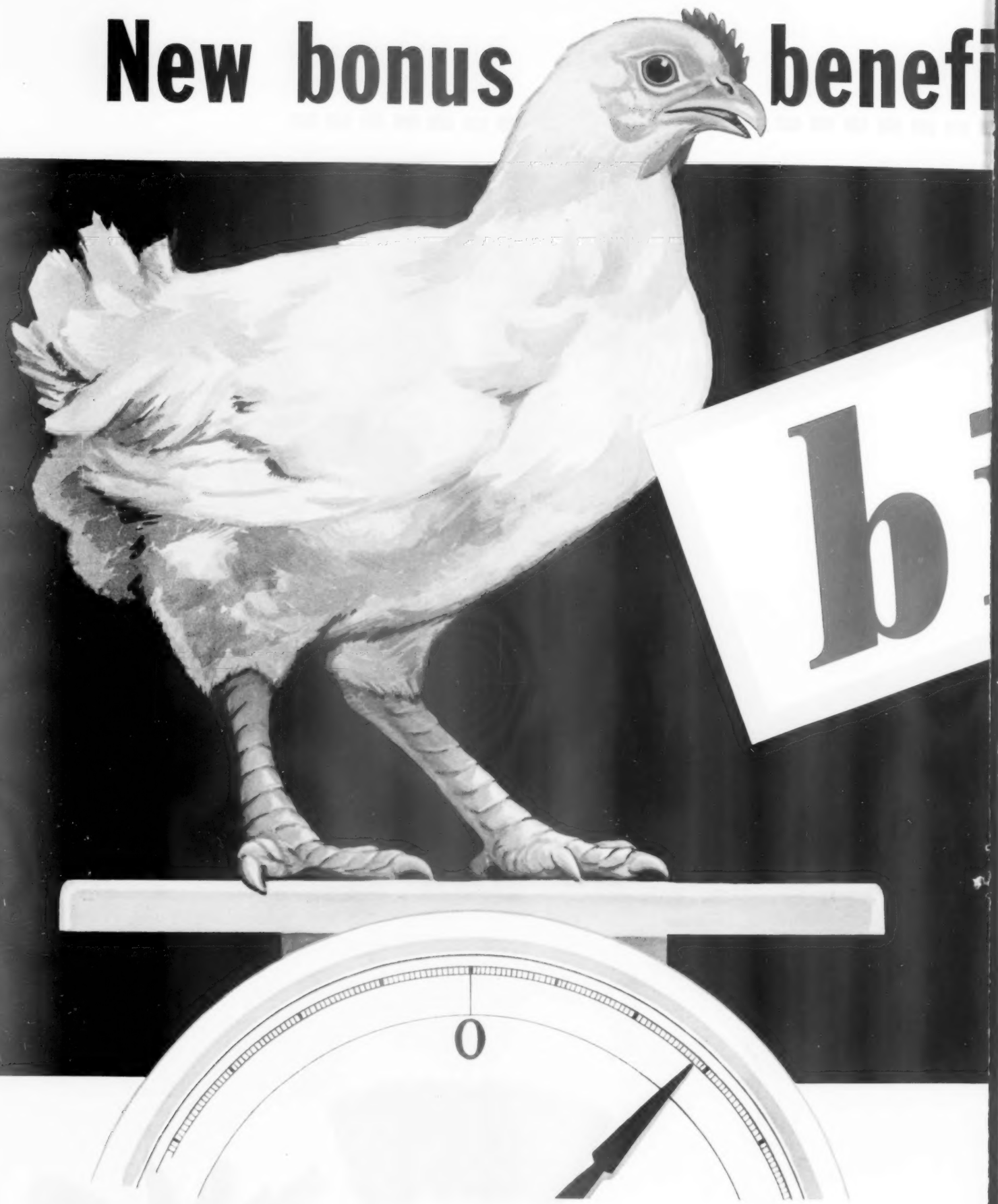
Our representatives are ready to give you complete data from field trials and extensive research studies. We invite you to try bīfuran — to test it in your feed formulas — to see why this coccidiostat shoulders a greater share of the load in a bag of feed.

Cordially,

Frank N. Getman

Frank N. Getman
President

New bonus benefi



Lifesaving bīfuran
turns today's problems
into tomorrow's profits

Broiler growers are in the market for feeds with a coccidiostat that does more than control coccidiosis. To maintain profitable production they need the better feed conversion qualities and other bonus benefits that bīfuran adds to your feed. That's why, regardless of the coccidiostat you're now using, it will pay to switch to bīfuran, the coccidiostat that turns problems into profits. New bīfuran is ready now. Ask your Hess & Clark representative for full details.

t coccidiostat...

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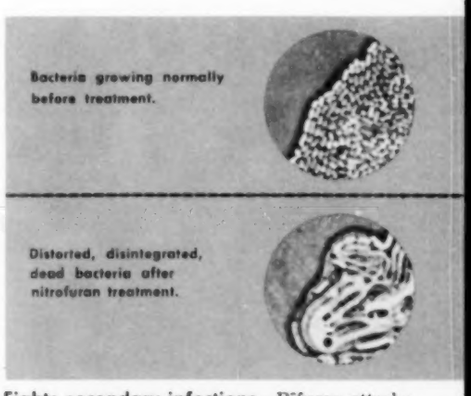
....today's answer to

better broiler feed performance

New bīfuran is more than an efficient answer to coccidiosis problems. It's a modern coccidiostat with unmatched bonus benefits. Besides controlling coccidiosis and permitting solid immunity, bīfuran significantly improves feed conversion,[1-2] stimulates growth in the presence of coccidiosis[3] and attacks many secondary infections.[4] That's why bīfuran helps broilers make better use of every ounce of feed. Feeding records speak for themselves — show that birds fed bīfuran-fortified broiler rations need less feed to make the weight. That's why new bīfuran is best for broiler growers . . . and best for feed manufacturers. Bīfuran is today's answer to improved broiler feed performance.

Better feed conversion—Recent field research with bīfuran demonstrated feed savings of up to 4¢ per bird over another widely used coccidiostat . . . up to ½ pound less feed needed to grow a 3-pound bird.[3]

Effective coccidiosis control — Bīfuran gives greater protection against both cecal and intestinal coccidiosis because of the synergistic action of its own nitrofuran components.[2-5-6] Allows development of solid immunity.



Fights secondary infections—Bīfuran attacks vitality sapping secondary infections which often go undetected to lower feed performance. These actual microscopic photographs demonstrate the action of nitrofuran drugs against common disease bacteria.

Turn the page for more research and performance information ——

bīfuran →

No other coccidiostat can match bīfuran's performance in broiler feeds

Bīfuran goes to work where it helps the most. Controls coccidiosis. Improves feed conversion. Increases profit per bird. For instance, when 1,800 White Rock chicks were exposed to natural coccidiosis infections, the birds fed bīfuran-fortified feed required .33 pound less feed per pound of gain than birds given another widely used coccidiostat.[3]

The birds receiving bīfuran in this test returned 4.26¢ more per bird than birds given the other coccidiostat.

These results are confirmed by other widely conducted tests.[1] In every case birds receiving bīfuran cost less to raise than the birds receiving the other coccidiostat. These tests show that broiler growers can expect savings of 2¢ to 3¢ per bird by using bīfuran-fortified feeds.

bīfuran maintains growth

From day-old to market, bīfuran helps keep birds gaining at their expected rate. Even during times of stress no lag in gain is likely. This means growers can more accurately hit market dates and deliver top quality birds.

Wide margin of safety

There's no risk involved with bīfuran in your feeds even at twice the recommended level. It's non-toxic. And it's safe even if accidentally given to breeding or laying flocks. There are no adverse effects on egg quality, fertility, hatchability or rate of lay. This is another important reason why bīfuran is the ideal coccidiostat both for feedmen and growers.

On the handling end — bīfuran frees you from the worry of contamination problems. It's safe in the mill —in feed rooms. Accidental drug hangups are no problem — new bīfuran is also safe for breeding and hatching flocks — no risk involved when using the same equipment to mix broiler and layer or breeder feeds.

Leaves no residue in body tissue

Bīfuran can be fed right up to market time without danger of drug residues left in body tissue. It's used up as it works. There's no dangerous leftover.

bīfuran advantages spell more profit

Add up all the bonus benefits of bīfuran and the total is more profit for broiler growers and better feed merchandising for you. Bīfuran frees you from the worry that your coccidiostat may upset feed conversion or cause other harmful side effects. Include bīfuran in your broiler feeds now and take advantage of this new combination of lifesaving nitrofurans.

It pays off in better feed sales and more grower satisfaction with your feeds. Your Hess & Clark representative has complete details or contact Feed Products Division.

Here's how you register bīfuran;

No new drug application or certification is required to add bīfuran to your feeds. Bīfuran appears on the tag as a combination of furazolidone and nitrofurazone. All you need do is list the active drug levels of each to comply with local state regulations. Bīfuran is compatible with all commonly used feed medications and can be used in combination with regular levels of arsenicals, antibiotics, etc.

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Specialists in feed medication

Increasing Feed Efficiency

● By Dr. Byron T. Shaw
U.S. Department of Agriculture

EDITOR'S NOTE: The challenge to the feed industry and others in getting research results into wider use is pointed up in the accompanying article by Dr. Byron T. Shaw, administrator of USDA's Agricultural Research Service. Dr. Shaw notes that a good deal of progress in animal agriculture has been made but that there is a real job in helping to close the gap between what farmers generally are doing and what they can do, with modern practices and feeds, in the way of feed conversion efficiency. He also discusses some of the opportunities and problems in further improvements in breeding, feeding and management research. This article is the text of a talk by Dr. Shaw at the Animal Nutrition Research Council's annual meeting in Washington, D.C.

At times we in agriculture have been criticized for spending so much time and effort studying nutritional requirements of livestock. Some people have accused us of being more interested in the welfare of domestic animals than we are in the welfare of people. The great pioneer in human nutrition, Dr. Atwater, complained about it to his fellow scientists 50 years ago.

These critics did not want less research in animal nutrition; they wanted more research in human nutrition—and they got it. But as we've learned about the nutritional needs of people, we've learned also about the importance of livestock products in human diets. So, today, we can all be thankful for the public and private effort that is going into animal nutrition research. Its relationship to human nutritional welfare is a lot closer than some of those early critics may have realized.

Besides, we like meat and milk and eggs, and we demand them to the extent our incomes permit. That makes it easy for us to follow the recommendations of nutritionists when they tell us to eat more of these protective foods. And, as you well know, we certainly are eating more livestock products.

More Consumption

Since 1935-39, we've increased our per capita consumption of meat, poultry, and fish 33%; of dairy products (excluding butter) 13%; and eggs 28%. Each of us is eating about a fourth more livestock products than we ate in the late 30's.

Not only that, but there are more of us. And especially significant is the fact that an increasing proportion of our population is in the younger and older age groups, where protective foods are particularly important to health and well-being. It looks now as if these trends, both in greater per capita consumption of livestock products and in increasing population, will continue in the future.

That's an encouraging prospect for the livestock industry, including you people in the feed business. It means gradually expanding markets for livestock and livestock products and for the crops and feeds that go with livestock production. And I think you'll agree with me that our present methods of converting feed into livestock and of putting meat and other animal products on the market should be steadily improved, so you can take full advantage of these markets.

Great Gains Made

We all know that tremendous gains have been made in the overall efficiency of livestock production. Since 1935-39, output per breeding unit has increased about one third. For example, we're getting 40% more beef per cow, 20% more pork per sow, 45% more eggs per hen, and 30% more milk per dairy cow.

When we analyze these gains, however, we find that most of the improvement has been in efficiency per head rather than in efficiency in feed conversion. The gains are primarily due to animals with greater production capacity, more and better feeds, better control of diseases and insect pests, and improved management practices all along the line.

Improvements that increase the number of pigs saved per sow, the number of chicks hatched per layer, or the number of calves per cow are significant in building up the scale of operations and in making better use of labor, fixed capital and overhead. The mechanical incubation of

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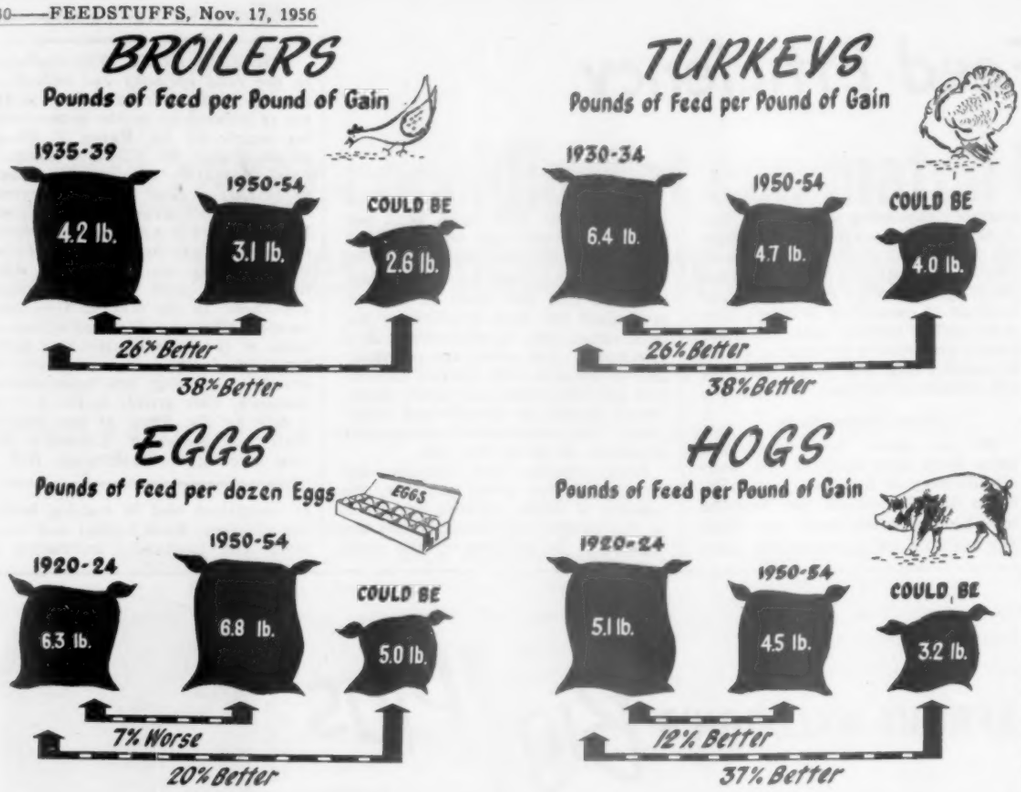


eggs, for example, has vastly increased chicks hatched per layer. The increases in milk production per cow and in egg production per hen are largely due to the development of cows and hens with higher productive capacity and to the feeding of more and better rations.

Changes in Feed Efficiency

The actual measurement of changes in feed conversion efficiency is an extremely complex job. In the first place, the products themselves have changed. For example, the average dozen eggs today is perhaps an ounce heavier than it was 20 years ago. The average fat content of milk is less. In the second place, the quality and quantity of feeds have changed. The protein content of hay and pasture forage is higher; that of corn is less. In the old days, poultry obtained a considerable part of their feed by picking up insects and waste grain around the farmstead. This feed never entered into official estimates of feed consumption, thus making poultry appear to be more efficient converters of feed than they actually were.

Keeping all these qualifications and conditions in mind, we can get a fairly clear picture of the situation by comparing feed efficiency as it stands today with what it was a number of years ago. See the accompanying charts. (Pages 30 and 32.)

Now let me summarize these charts in one sentence. So far as efficiency of feed conversion is concerned, farmers have made excellent progress in putting research into practice with broilers and turkeys; they've made some progress with hogs and beef cattle; a little in milk production; and none in egg production.

The Most Progress

It is interesting to observe that most progress has been made in those classes of livestock that depend wholly or primarily on formula feeds.

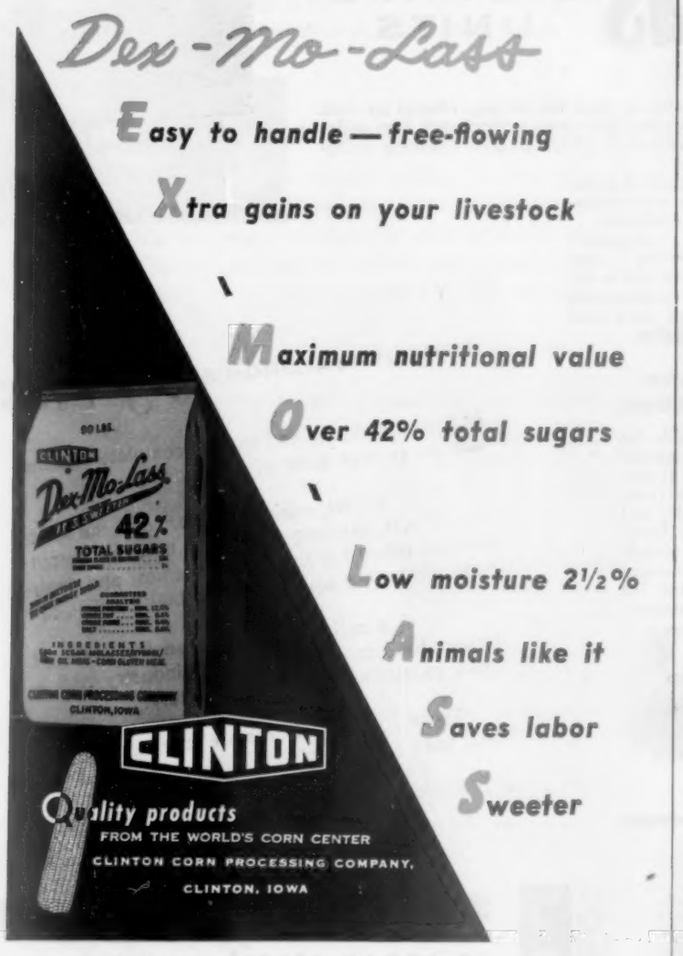
I believe I'm safe in saying that no industry puts research into practice more quickly than the feed industry. You literally breathe down our necks; many of you conduct feeding tests right along with and sometimes ahead of experiment station people. Within a matter of months, new ingredients and new formulas developed in the laboratory and tested in the field are ready for commercial use. And many of you go right to the farm and help to work out the best ways to use these new feeds.

In the last five years, as a result of the adoption of improved feed formulas, broiler producers have saved about a pound of feed per pound of broiler. Good results have also been obtained with turkeys, and are beginning to show up with pigs.

The Big Puzzle

The big puzzle concerns egg production. Why are the improved laying rations not being reflected in better feed efficiency? Producers should be getting a dozen eggs with 5 lb. of feed. They're actually using almost 7 lb. We can account for about ½ lb. of this in the increased weight of the average present-day layer. But we can't account for the other 1½ lb. Is it a matter of wasting feed in the hoppers? Are they feeding rats as well as chickens? Is it faulty management? We simply don't know the answers.

As you see in the charts, farmers should be getting better results with other classes of livestock, too. It's



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The feed industry's case against "phantom" phosphorus

The evidence against "phantom" phosphorus — phosphorus that can't be utilized by farm animals — is well worth examining.

Feed manufacturers with an eye for performance and repeat business know "phantom" phosphorus can make bargain phosphates expensive. Feed performance is likely to suffer because today's harder working livestock and poultry need up to 79% more phosphorus every day.

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You can rely on this higher availability of DynaFOS . . . the favorable, steady price . . . the dependable, even supply in either beaded or powdered texture. If you are not already using International's DynaFOS, write or wire your nearest sales agent for samples and quotations.

One pound of Dynamic DynaFOS gives you as much available phosphorus as 2 to 9 pounds of unprocessed, raw phosphates . . .

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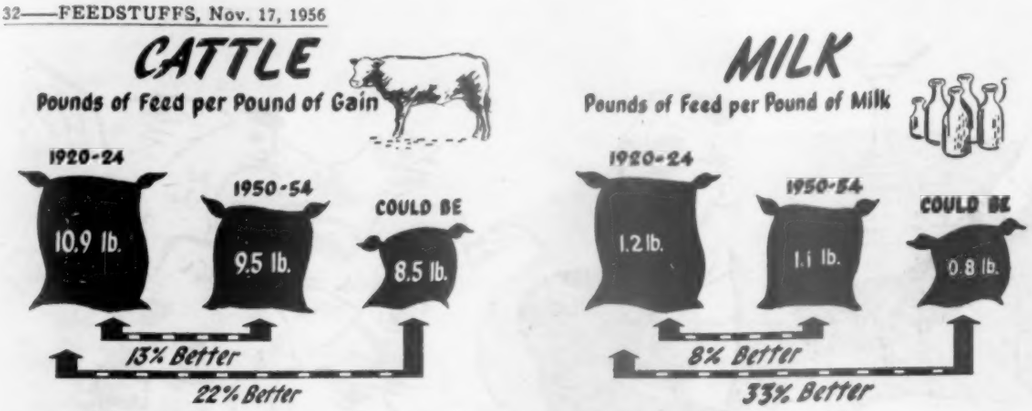


quite possible they're feeding wastefully all along the line. For example, too many dairymen increase milk production by feeding huge amounts of concentrates, when they should be producing cows with higher productive capacity and feeding more forage. A 10,000-lb. cow should be getting 75% of her nutrients from forage; she's probably not getting much more than half. Pigs are going to market too heavy, with too few vitamin and mineral supplements for best use of grain. Stilbestrol looks good from the standpoint of improving daily gains in beef production, but to obtain equivalent grade and quality, stilbestrol-fed cattle must be carried to heavier weights. Thus, about the same total feed is consumed—with only a nominal increase in feed efficiency.

I can think of no better way, however, for farmers to cut the cost of livestock production than by improving feed efficiency, because feed takes the major share of their production dollar. Feed accounts for more than two thirds of the total cost of producing hogs, broilers, and turkeys, and over half the cost of producing eggs. Grain and other concentrates make up well over half of the cost of fattening cattle, and about a fourth of the cost of producing milk. Anything we can do to cut this feed cost, therefore, means money in the farmer's pocket.

The Immediate Job

So the immediate job of research, extension, and the feed industry—and it is a joint responsibility—is to do all we can to help get results into wider use — to help farmers more nearly close the gap between what they're now doing and what they can do.

Beyond that, our job is to break through the research ceiling on feed efficiency—to provide higher levels of improvement that the feed and livestock industries can put into practice. I believe we can do this in three ways: (1) Through breeding, (2) through feeding and (3) through management.

Breeding

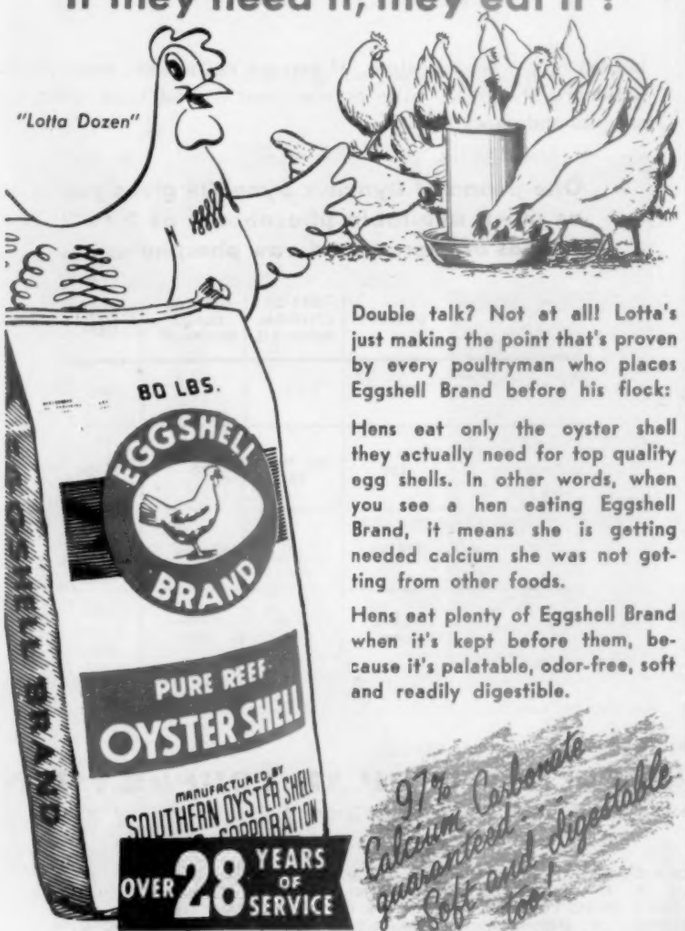
Experience has shown us that we can improve efficiency of production through nutrition and other environmental means only as much as the genetic capacities of our livestock permit. We also have evidence that individuals as well as strains in all classes of livestock differ in their ability to utilize feed. In tests with dry dairy cows, for example, where milk production is not involved, we've found that it takes different amounts of feed to maintain body weight. We've placed modern strains of broilers on rations that were used 25 years ago and obtained faster growth than the broilers made back then. Some of this gain must be attributed to breeding. Every poultry breeder doing record-of-performance work knows that some of his hens will consistently lay more eggs per year on the same amount of feed as the rest of the flock is getting.

Research at Beltsville and at Miles City, Mont., has established the fact that rate of gain is highly heritable in beef cattle. At Miles City, we have lines selected especially for ability to produce meat efficiently. The steers will put on 2½ lb. a day on the same feed that gives a gain of only 2 lb. in standard commercial strains. Furthermore, they reach market finish with standard weight and carcass quality. We have individual 3-lb.-a-day steers in our test lots, and we know that we can get these gains within the type and kind of beef cattle that the breeders and market prefer.

Similar results have been obtained with meat-type hogs. When breeding for leaner hogs started about 20 years ago, test animals reached 200 lb. in six to seven months on about 380 lb. of feed per 100 lb. of gain. Now they reach 200 lb. in 5 to 5½ months—sometimes less—on 300 to 350 lb. of feed per 100 lb. of gain.

In increasing production of eggs, milk and meat in the past, we've depended heavily on the selection and mating of one superior specimen to another superior specimen. This has been very successful. The things we're learning about hybrid vigor, however, open up still further possibilities. We now hope to find and

"If they eat it, they need it...
If they need it, they eat it!"



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apply the scientific principles that will enable us to predict the outcome of the mating with certainty. Instead of one fine animal—that utilizes feed efficiently, for example—and an assortment of culls, we hope we will some day be getting a good one every time.

Nutrition Research

A second opportunity for raising the research ceiling on feed efficiency is through more research in animal nutrition. We need to know much more about the nutritional requirements of animals for body maintenance and for high production.

I'm sure you're familiar with the reports in which we've helped bring together all the information that has been developed in recent years on nutrient requirements for domestic animals. Some of you served on the working committees set up under contract with the National Research Council to make the compilations. These reports are valuable as practical guides in feeding. They are also of special interest to research workers, because they outline the gaps in our knowledge and point to questions that will need to be answered before we can move forward.

Take the report on poultry, for example. We think we've learned a great deal in recent years about poultry nutrition. And yet in the tables on daily nutrient requirements for mature birds in both light and heavy breeds, the entire columns on maintenance requirements contain nothing but question marks. Until we know the requirements, we cannot determine what ingredients and how much of each we must provide to meet them.

Although we've made an effort to find growth promoting factors, we've done very little work to detect toxic substances or substances that interfere with metabolism. A few have been recognized—gossypol in cottonseed meal, a growth inhibitor in alfalfa meal, and bloat-producing saponins in some legumes, for example. But there may be others that do not have a perceptible effect on the animal, but may prevent best growth and feed efficiency. If we can identify these substances, we may be able to remove them or to reduce their effects. For example, we have recently obtained evidence in studies with pigs that high quality and quantity of protein in cottonseed meal diets modify the toxic effect of gossypol.

We need much more information on

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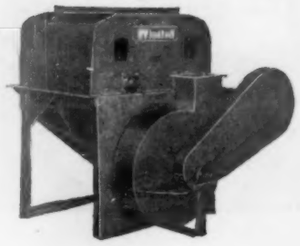

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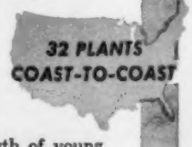

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the interrelationships of various elements in feed. For example, we need to know the exact ratio of amino acids to caloric content, but we do not have accurate methods for determining amino acids. It is difficult, therefore, to arrive at the most efficient level of amino acids in the diet.

We don't know nearly enough about the role minerals play in growth and feed utilization. Their importance was brought out in the recent discovery that parakeratosis in pigs is associated with either high calcium or low zinc content, or a combination of the two. We don't know just what causes the trouble, but we do know that seriously affected animals simply do not grow until supplemental zinc is provided in the diet. This may account for some of the cases where antibiotiics fail to correct stunted growth in pigs. It also raises a question as to possible effects of other trace minerals.

Results with antibiotics and hormones have been dramatic and interesting, but we may find that the establishment of requirements for trace elements may have just as far-reaching effects. If we can find out the amounts and proportions of trace elements, amino acids, vitamins and other nutrients needed by rumen microorganisms in digestion, we may go a lot further in increasing efficiency of feed utilization.

For example, scientists have recently identified a factor that is essential for the growth of some important fiber-digesting bacteria. This factor is usually not present in the feed consumed by the animal, but is produced by certain bacteria in the rumen and used by other bacteria that digest fibers. The findings lead us to the question of whether the factor can be added to certain high-fiber rations to increase digestion and thus speed up growth of the animal. We don't know yet, but we are working on it. If the answer is yes, we could certainly feed more forages.

Forages More Important

There's no question that forages are going to take a more important place in cattle feeding—both beef and dairy. And this brings up one of our biggest needs in animal nutrition research—that's the need to develop better methods of evaluating the nutritive quality of forage.

This need goes all the way back to plant scientists who are developing improved varieties of grasses and legumes. For example, we need better preliminary tests for quickly evaluating forage material. Grazing tests are expensive and the experimental error is rather great. And even when sheep are substituted as the test animal, the studies take a long time.

If we had a good test-tube method for predicting rate of gain from new forages, we could do the job more quickly at less cost, and the results would be more accurate. One approach might be to culture the microorganisms of the rumen and use them as testers. But we don't know enough yet about what goes on in the rumen, and what happens when the grass goes through the animal.

We also need better methods for measuring utilization of pasture and range forage. Those in current use are tedious and imperfect. Lignin and chromogen ratio methods are helping us find out how much of grasses is digestible. But cattle are selective grazers. What plants and plant parts did the animal eat? Pasture productivity measured in terms of animal-unit months of pounds of gain per acre or per animal is only a partial answer. When was productivity measured? Was it during the peak growth period of the plant? If so, gain per acre may look mighty good, but cattle have to eat 365 days a year.

We know that forage plants increase in the percentage of fiber, decrease in protein and phosphorus as they mature. Carotene declines steadily after maturity and during storage. But we don't know nearly enough about efficient supplementation with vitamin A, or about preservation of carotene and other nutrients in harvested hay or silage. If farmers are to depend on forage for a major share of nutrients for beef and dairy cattle, they must be able to grow, harvest and preserve those nutrients.

They must also be able to combine their forage supplies with mixed-feed supplements in ways that will give highest feed efficiency and best total gains. This calls for prepared feeds tailored to the needs of the individual farmer—to fit in with his roughage or forage program.

Right Kind of Management

A feed and forage program such as this calls for the right kind of management. And this brings me to our third opportunity through research to break through the ceiling on feed efficiency. In a real sense, management includes breeding and feeding—the other two points I've discussed. But good management also includes soil conservation, efficient pasture and forage production, the control of insects, diseases and parasites of both crops and livestock, and proper care of animals and poultry all along the line.

Experience has shown that anything that affects the animal affects its efficiency. Heat and humidity, for example, have pronounced effects on feed consumption. We've found that pigs farrowed in summer and fall make better use of feed than spring-

(Continued on page 40)

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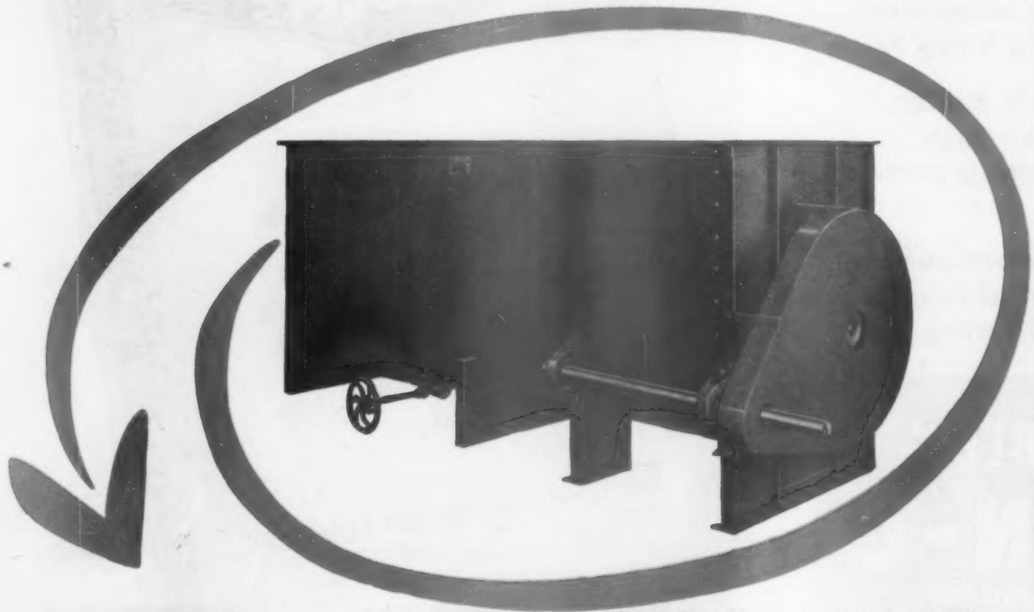
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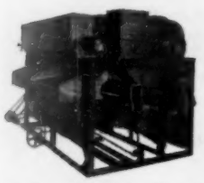
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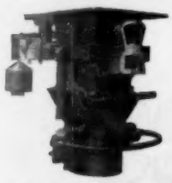
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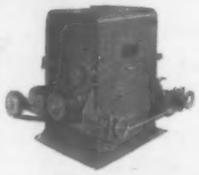
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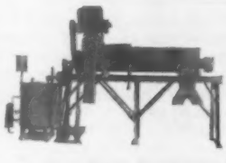
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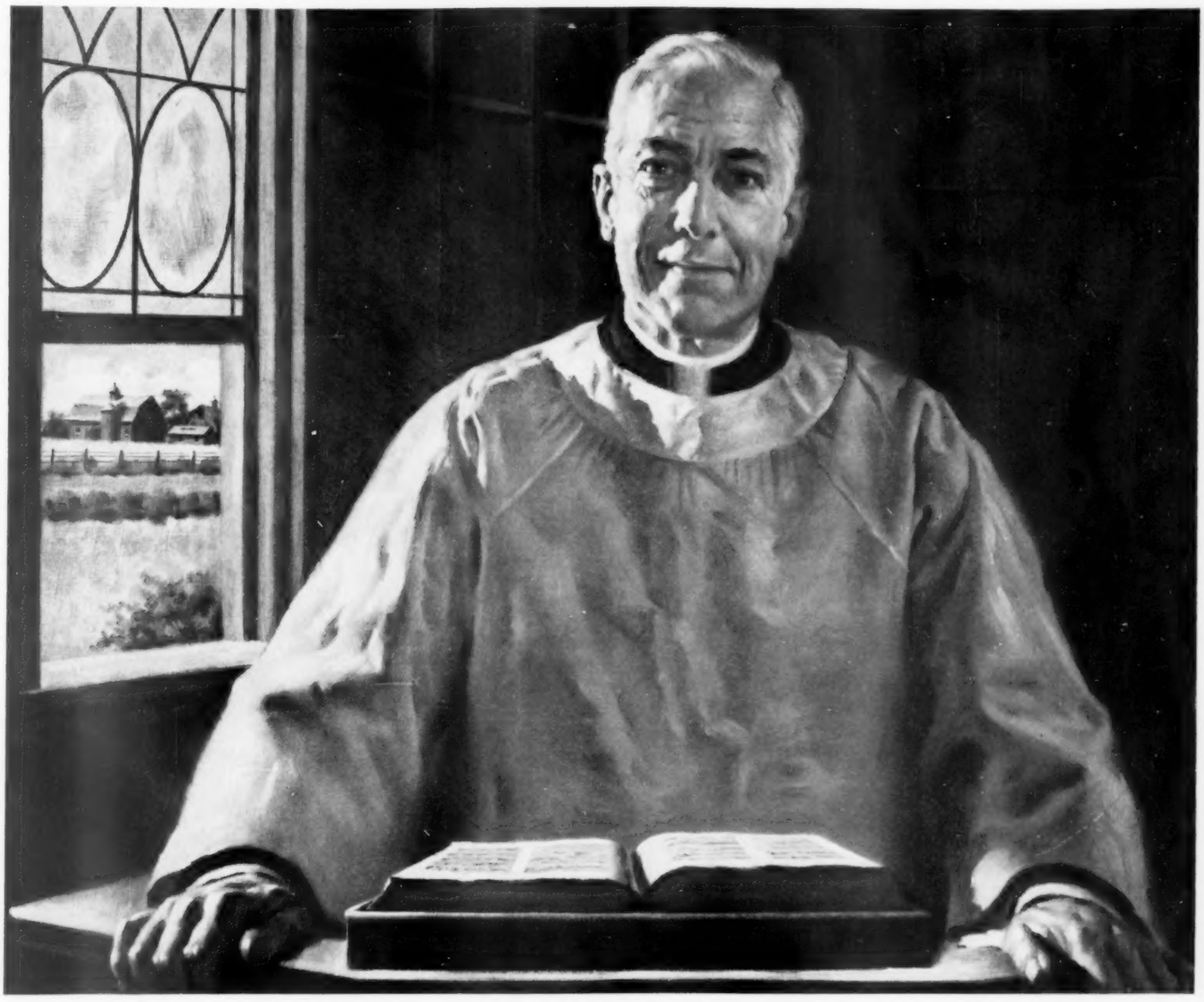

What is a Rural Minister?

As much as any man can be, this man *is* the farm community. When troubles mount, he is the man to turn to. From baptism to death, he is there. He is the community's humblest citizen, yet one of its most important individuals. In him is wrapped the community's whole purpose. He is the community's character and conscience. This is the Rural Minister.

Dawn over ripening fields brings God close each day to the Rural Minister. The birth of a calf or the emergence of a fresh, green shoot of spring corn—these are miracles that reaffirm the presence of God. It is often said that no one can work long with living things—plants or animals—and not feel the existence of a supernatural power.

The Rural Minister believes devoutly in this as do the members of his congregation. Because of the closeness of the farmer to great forces beyond his control, his minister is of peculiar importance to the farmer as an interpreter of the divine power behind these forces.

What strong urge makes a man become a rural minister? This will remain his secret, but we do know that few men serve the rural community so nobly. We know, too, that others who serve that community are many—the country doctor, the county agent, the country editor, the county home agent—the list is long.

Backing up these people are others who serve in different ways—creative processors such as Cargill, for instance.

Like the minister, Cargill sees miracles in farm life. Some of these are divine; some are man-made. Behind the man-made type of "miracle" is usually the hard, hard work of patient laboratory scientists.

Out of that hard work have come better markets for farm products and better products for the farm. These are the goals of creative processors such as Cargill.

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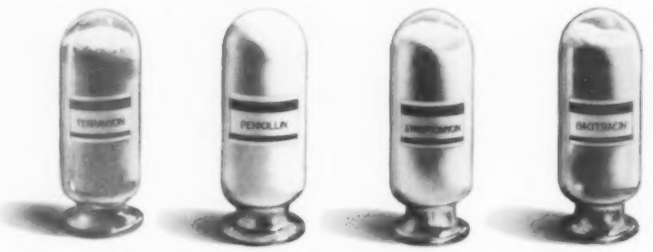

"SELECTIVE ACTION" OF ANTIBIOTICS AND FEED PERFORMANCE

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Feeding results, the practical standard for measuring how beneficial an antibiotic is, prove many advantages of Terramycin over any narrow-spectrum antibiotic.

That the intestinal tracts of farm animals and poultry teem with billions of bacteria is a well-known fact.

Some of these bacteria are decidedly harmful—even deadly to the host animal. Others are harmless or benign.

When antibiotics were first introduced for use in feeds, there was considerable controversy and concern lest antibiotics suppress the good bacteria and upset the balance of nature.

What are "Good" Bacteria?

Of course, the major disease-producing organisms are known, but it is not possible from present knowledge of the microflora of the intestinal tract to state categorically what organisms are beneficial nor to relate action of antibiotics at the concentrations used in feeding, to specific types of organisms. There is no preponderance of evidence that microorganisms which synthesize needed nutrients are ruthlessly "knocked out" by broad-spectrum antibiotics but encouraged by certain other antibiotics.

However, there is no question as to which antibiotic is the most beneficial to livestock and poultry. Feed manufacturers and feeders have found out long ago that they thrive on Terramycin.

Terramycin Promotes Appetite and Feed Efficiency

Consider the remarkable appetite-promoting action of this antibiotic. Birds and animals are back on full feed and gaining within a few hours after Terramycin has been introduced into the ration. The superior growth and improved feed conversion certainly are not consistent with a profound upset of intestinal microflora.

Broad-Spectrums Spare Nutrients

Moreover, the literature is replete with studies showing a sparing action of broad-spectrum antibiotics upon nearly all of the important vitamins and several amino acids. Included are vitamin A, thiamine, niacin, riboflavin, pantothenic acid, vitamin B_{12}, folic acid, choline, biotin, methionine and tryptophane. *This sparing action could not occur if desirable intestinal microflora were suppressed.*

Weigh the Evidence—and the Animals

As a growth-promoter for pigs, Terramycin is 20% to 30% more effective than penicillin, bacitracin or streptomycin. This is the average of scores of trials.

In Purdue, tests with tail-end pigs, ones on high levels of Terramycin gained 48% faster than controls while ones on the same levels of bacitracin failed to gain as well as controls.

There was no question of the outstanding beneficial effect of Terramycin. Nor was there any question but that the narrow-spectrum antibiotic actually cost a great deal more to use as measured by results.

What Rumen Studies Show

In ruminants, beneficial organisms are indispensable to the digestive process. Extensive rumen function studies have shown that Terramycin exerts only a slight and transient effect upon the microflora as measured by ability to digest cellulose. Even when fed at high therapeutic levels Terramycin does not impair rumen function.

In beef cattle, both rate of gain and feed efficiency have been improved an average of 8% by feeding Terramycin. In sheep, Terramycin improves both growth and feed efficiency approximately 10%.

Calves getting Terramycin grow as much as 30% faster than calves on the same ration without antibiotic. A "tendency" to improve growth has been reported for bacitracin while penicillin appears to be without significant effect.

Count the Chickens Before Counting the Savings

In broiler rations, bacitracin *at low nutritional levels* has some cost advantage. At *high levels*, in side-by-side trials, growth and feed efficiency were almost as good for bacitracin as for Terramycin. But *in the flock protected by Terramycin fewer birds died!*

Birds were fed high levels of antibiotic continuously from one day to market in order to compare economics of the two antibiotics. Bacitracin cost less per gram, but *Terramycin brought the grower a $5.73 greater net return per 1000 birds.* These advantages occurred in the absence of obvious disease.

The economics in favor of Terramycin may be multiplied many times over when disease outbreaks actually occur—as they all too frequently do.

How Antibiotics Compare as Disease Fighters

This brings us to the most important reason why a broad-spectrum antibiotic is your most practical choice for high level feeds.

Although Pfizer makes bacitracin in many forms for use in human medicine (where careful diagnosis is possible and its specific uses and limitations are well known) we have not offered it for use in feeds except for research purposes. The reason is very simple:

Bacitracin has a narrow range of disease-fighting power. Although it is excellent against Vibrionic Dysentery, (as is Terramycin) this specific disease of pigs is only one of the *many* causes of scouring (see chart at right). Few of the many species of gram-negative bacteria of major importance in animal disease are controlled by either bacitracin or penicillin.

It cannot be emphasized too highly that these gram-negative organisms are important factors in the most devastating animal and poultry diseases—either as primary causes or secondary invaders.

Terramycin is active not only against all the species of harmful bacteria suppressed by either bacitracin or penicillin (even in combination), but is also active against all the gram-negative intestinal bacteria associated with most common enteritic conditions.

Absorption, too, is Important

Terramycin is readily absorbed from the intestine and thus is effective against the organisms directly causing or secondary to many non-enteric diseases, such as CRD, shipping fever complex, sinusitis and atrophic rhinitis, to name just a few.

There is a lot that remains to be learned about antibiotics, but we've learned a lot already. One thing that is abundantly clear is this:

A broad-spectrum antibiotic, such as Terramycin, costs a *little* more per gram, but is worth *much* more in terms of assured performance of your feeds.

How does the antibiotic in your feed measure up?

CONTROL OF SCOURS

When a farmer has scouring pigs he never knows what species of bacteria is causing the trouble. The chart shows why he may not receive much help from either penicillin or bacitracin. It also shows why Terramycin gives the kind of results that help to build confidence in your feeds.

BOX SCORE AGAINST SCOURS

Common causative organisms in enteritic diseases of pigs, calves and poultry	Antibiotic effectiveness	
	Penicillin & bacitracin	Terramycin
Aerobacter aerogenes	No	Yes
Escherichia coli	No	Yes
Pseudomonas aeruginosa	No	Yes
Pasteurella species	Yes	Yes
Salmonella species	No	No
Vibrio coli	Yes	Yes

BLUE COMB, SYNOVITIS, CRD

Terramycin offers far more protection against these diseases. It is the antibiotic of choice against Blue Comb. Neither penicillin nor bacitracin has any noteworthy effect against Synovitis, CRD, Hexamitiasis.

THREE STRIKES AGAINST SECONDARY INVADERS

Bacteria most responsible for secondary disease conditions in poultry	Antibiotic effectiveness	
	Penicillin & bacitracin	Terramycin
Pseudomonas species	No	Yes
Proteus species	No	No
Pasteurella species	Yes	Yes
Escherichia coli	No	Yes
Aerobacter aerogenes	No	Yes
Staphylococci	Yes	Yes
Streptococci	Yes	Yes

IN HIGH LEVEL FEEDS TERRAMYCIN IS A YARDSTICK OF VALUE

Here are benefits your tags can display and your feeds can deliver when they contain recommended levels of Terramycin:

POULTRY—GENERAL

control and prevention of
Blue Comb also known as mud fever
and non-specific enteritis
Early Chick & Poult Mortality
Infectious Synovitis
Hexamitiasis
aid in reducing mortality from
Air Sac (Chronic Respiratory Disease) and Infectious Sinusitis
In stress conditions to
Maintain Appetite and help Guard Against Disease

FOR LAYING FLOCKS

to Extend period of high egg production
Improve Normal Egg Production
Improve Feed Efficiency
Improve Fertility
Improve Egg Production and Feed efficiency in presence of disease and at times of stress.

SWINE

Prevention and treatment of *Bacterial Diarrhea*, (Scours) and as an aid in maintaining weight gains and feed consumption in presence of *Atrophic Rhinitis*

BEEF CATTLE

for prevention and treatment of *Shipping Fever Complex.*

LAMBS

prevention and treatment of *Bacterial Diarrhea* (Scours) and to aid in reducing losses from *Enterotoxemia.*

CALVES

prevention and treatment of *Bacterial Diarrhea* (Scours)

MINK

prevention and treatment of *Bacterial Diarrhea* (Scours)

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says William E. Lucas
Valley Feed & Supply, McMinnville, Ore.

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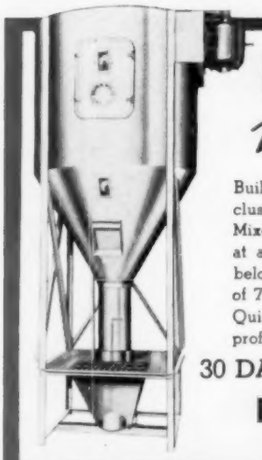

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INSPECTION—At a feed school recently conducted at Edgar, Wis., some time was devoted to bulk delivery methods. Above are shown managers and employees of Midland Cooperatives, Inc., feed, seed and fertilizer department, inspecting the Bulkmaster and Pak-Master feed bodies, manufactured by the Highway Equipment Company, Inc., Cedar Rapids, Iowa.

farrowed pigs. Keeping cattle in the shade during extremely hot weather will put on additional pounds. During fly season, animals spend time fighting flies instead of grazing. Feed consumption goes down and it takes longer to fatten the animal. Milk production drops off.

We know that internal parasites affect well-fed animals far less than they do malnourished animals. But we do not know nearly enough about the relation of host and ineffective agents in the development of disease. We know almost nothing about the influence of season, temperature, nutrition and other environmental factors on the expression of disease.

Problems of Research

Perhaps at this point I should underscore some of the difficulties of research. You and I know that solutions to fundamental problems do not come easily. This is particularly true, I believe, in animal nutrition research.

But we do move forward, even though our progress sometimes seems slow and tedious. Often we can go ahead when we try a new approach —restate the question. In other instances we make great advances through new tools—new methods—that are more precise.

During the 10 years radioactive tracers have been readily available, we've made great strides in learning how to use them. They are helping to increase our knowledge of animal nutrition along many lines. For example, we're using radiocobalt to obtain new information on cobalt deficiency. Radiomethionine has given the possibility of a sensitive method of estimating the amino acid requirements of laying hens. Radioactive vitamin B_{12} has given us a better understanding of B_{12} activity in baby chicks. We're using radioactive sulfur in sheep to study the role of urea and inorganic sulfur in protein building.

This is the type of information that is needed over the long pull if we are to provide feeding recommendations for specific returns in livestock products.

In closing, I want to say that all the signs point to a speed-up in efficiency in livestock production all across the board. The phenomenal growth of the commercial broiler industry gives us a mark to shoot at in the rest of the livestock industry. Breeding for rapid gain and efficiency of feed utilization, improved feeds and feeding practices, and more efficient, lower cost management will all have a part in this progress.

Through the years, as you know, we have not moved ahead in our progress in research with beef and dairy cattle or sheep as we have with poultry and hogs. But we're beginning to cut down the lag. We're breaking through some of the research barriers that have held us back for years. And I am convinced—if we take advantage of our resources and face up to our responsibility—that we can develop information that will give livestock producers—indeed farmers everywhere — returns commensurate with their time, labor and money invested.

The feed industry shares this responsibility. You have a job of helping to make sure that the research results today become the farm practices tomorrow.

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Do you want to be absolutely *sure* the feeds *you* make are the best your customers can buy? That you offer complete, meat, milk and egg producing, new Nutrition Programs which will enable you to meet—and beat—competition of *any* size? Yet, feeds whose formulation and fortification are push-button-easy?

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You retain the economy of local mixing, yet take advantage of Dawe's big-scale, centralized, scientific nutrition research.

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WORLD'S OLDEST AND LARGEST SPECIALISTS IN VITAMIN PRODUCTS FOR FEEDS

SALES CONVENTION—Industry changes in production, distribution and sales methods were emphasized at the 22nd annual sales convention of McMillen Feed Mills at the French Lick-Sheraton Hotel, French Lick, Ind. Dale W. McMillen announced the names of 16 men who were elected to honorary clubs, the Master Mix Wildcats and Pacesetters. The four named to the latter group are shown in the above picture, from the left: John Cooper, Richmond, Ind.; William Pritts, Mt. Pleasant, Pa.; Mr. McMillen; George Miller, New Brighton, Pa.; and Frank Franz, Jr., Montgomery, Ala. The Wildcat group, in the picture at the right, includes the following, standing, from the left: Garold Babcoke, Anderson, Ind.; Carl Gerdon, Jasper, Ind.; George Martin, Jr., Baraboo, Wis.; Mr. McMillen; Fred Watson, Grandville, Mich.; and Bob Hattersley, Albion, Mich. Seated, from the left: Leon Smith, Decatur, Ga.; John Miller, Memphis, Tenn.; Max Bleckman, Gadsden, Ala.; Earl Hofstetter, Jackson, Miss.; Henry Thomason, Fayetteville, Ark.; and Jim Bradley, Bowling Green, Ky. Charles Dietrich, Lancaster, Pa., was unable to attend the convention.

Dealers' Forum Staged By Peavey Feed Mills

MINNEAPOLIS—One out of every five firms now handling feed may not be doing so in a few years in this region, according to E. G. Cherbonnier, feed advisor for the Grain & Feed Dealers National Assn., speaking to 150 dealers and their wives in Minneapolis, Nov. 12 at the Curtis Hotel.

The dealers from six states were attending the third annual feed forum sponsored by Peavey Feed Mills, Minneapolis. Supporting his prediction, Mr. Cherbonnier noted that all kinds of feed users were getting larger.

"As livestock and poultry production units grow in size, the feed dealer will face a challenge of equal growth—not necessarily in the size of his warehouse or facilities so much as the growth of the man himself."

Mr. Cherbonnier keynoted the forum devoted to "getting know-how in the feed business." The two-day program, punctuated by the experiences of feed dealers attending the meetings, including discussions of farm management and service training, store attractiveness, custom mixing, culling and posting as well as the new sales promotion plans now available to the firm's distributors.

Participating in the program were the firm's general manager, F. T. Heffelfinger, II; J. R. Lindell, sales manager; Myron Carpenter, products control director; John Pierson, merchandising manager; Homer Munson, farm service director, and J. R. Adams, advertising manager.

As a special feature of the program, dealers' wives enjoyed visits to the test kitchens of F. H. Peavey & Co. and to points of interest in Minneapolis.

Boston Poultry Show Set for Jan. 24-26

BOSTON—An "egg-to-chick" show and poultry competition will be among the highlights of the 109th Boston poultry show which will be held Jan. 24-26 in Mechanics Bldg. here.

A live and dressed turkey show is planned and a new feature will see entries of broilers from outstanding growers competing against each other. Half of each entry will be displayed live and the other half will be dressed the day before the show opens.

A 4-H program will include a chick show, live bird exhibit and exhibits of equipment. Thomas C. Higgins, University of Rhode Island, will be in charge of the northeastern regional 4-H poultry judging contest.

A short formal program will be staged each day and the remainder of the time will be devoted to showing of exhibits, judgings and demonstrations.

Harvey C. Wood, Limestone Products Corp., Newton, N.J., will be chairman of the standard bred exhibits.

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Feed Industry Opportunities And Responsibilities

By Dr. R. R. Spitzer

EDITOR'S NOTE: The feed industry, in its efforts for producing a more efficient feed, points to an expanding market for this improved feed and to better feed service. But as the industry progresses and develops more opportunities, it likewise places added responsibilities on its members. Factors in these opportunities and responsibilities were discussed by Dr. R. R. Spitzer, Murphy Products Co., Burlington, Wis., chairman of the Nutrition Council of the American Feed Manufacturers Assn., in a talk at the Cornell Nutrition Conference for Feed Manufacturers. The text of the talk follows:

v v

Only tomorrow will tell whether nutrition research and the feed industry have already reached their peak, or are still to see even greater progess. We can predict with certainty, however, that there will be change.

History proves that nothing is static. Sciences and businesses do not stand still. We either move ahead or gradually move backward. It's my firm belief that we are moving ahead. I'd like you to think optimistically too, because it is the optimist who can capitalize on change and profit with progress. Tomorrow's advances will be made by optimists, by those who have vision who are looking ahead with an awareness of the power, the impact and the responsibility of our science and our industry.

My presentation might be summarized as follows:

Where there is purpose, there is strength. Where there is strength, there is opportunity. Where there is opportunity, there is responsibility.

Feed Industry Has Purpose

The feed industry helps in the conversion of feeds to foods for people. Even in these days of plenty, in our fast moving busy age, nothing is more important than people. The health and happiness of people stand out as the most important end result of any occupation, any science, or any industry.

Livestock and poultry convert feedstuffs to foodstuffs. Grass can not be fed to humans. Grains have only limited food value, but the value of both grass and grain is greatly enhanced when they are converted through animals to foods. The feed industry has catalyzed this conversion of feed to food, and thus has contributed to the health and happiness of people.

Farm Efficiency Demanded

We live in a day when we've learned to grow two blades of grass where one grew before. The atom has been split. Television is in over two-thirds of American homes. Machinery supplies 98% of our nation's productive energy while man's muscle supplies only 2%. A century ago man supplied over 66% of the energy with muscle alone. Since 1940 output per man has increased 30% in industry, and 83% on the farm.

Bigger farms, with more equipment and more research facts have meant more meat, milk and eggs. While our growing population will demand more food, the indications are that we'll have no trouble meeting the challenge. The farmer actually faces stiffer competition for the American Housewife's food dollar. With stepped up production, the feeder must operate efficiently or he can not compete.

Supply and demand are still the best law in controlling price. Let's hope that it can always be the law in our free enterprise system. Under this system you and I can help the farmers to produce meat, milk, and eggs for a price consumers will pay and still leave a profit for the feeder.

Americans want to eat good food. We're eating more good meat, milk, and eggs. Since 1930, we are eating 200% more turkey, 70% more cheese, 36% more pork and beef. The population is increasing, too. By 1975 we will number 220 million people.

Each person is a customer for meat, milk, and eggs if we can produce these products at prices he can afford to pay.

Farmers, Feeders Efficiency Conscious

Since 1940, American farmers are spending 27% less man hours but they are using 185% more tractors, 380% more combines, 500% more electricity and 200% more manufactured feed!

Freedoms plus progress are reasons why you can't beat an American farmer. One U.S. farmer produces abundant feed for an excellent diet for 18 people—one Russian farmer provides a scanty diet for three people.

Nutrition research and manufactured feeds have given feeders new productive efficiency. The use of formula feeds has increased from 13 million tons in 1930 to an estimated 35 million tons today. Poultry feeds make up 61% of total feeds sold. This great use of modern feed knowledge has helped boost egg production from 120 eggs per bird per year in 1930 to nearly 200 today. With help of sound feeds, an estimated billion broilers will be raised this year, compared to one-seventh this number in 1940. Prof. Gerald Combs, University of Maryland, as well as the Cornell University staff, and others have dramatically demonstrated broiler feed progress. Efficiency of broiler meat production has increased 90% since 1930.

Sales of feeds to livestock have not kept this poultry pace and less progress is apparent. Average milk production boost for the last 25 years is only 22%. The average efficiency of pork production today is only 26% better than in 1930. With beef, dairy and hogs lies opportunity for big tonnage and opportunity to help the farmer.

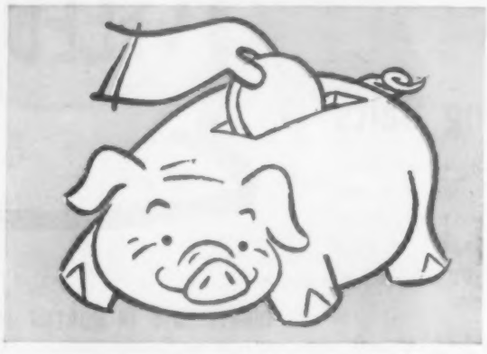
Lowered Feeding Costs

If there ever was opportunity for feed men, today is that day. No single efficiency factor can help the livestock and poultry farmer any more than better feeds. Truer today than ever before, his feeding profits are determined by the difference between income and cost. Chances of boosting his income by increasing prices are

STONEMO STARTS A NEW

How poultrymen can get from quality feeds

If you watch feed costs here's a money-saving tip! 1



You are interested in selling your top brand poultry feeds. Stonemo advertising is helping you. We are telling your customers they can get more eggs or meat from quality feed with Stonemo Granite Grit.

Millions of poultrymen and farmers will be told this Stonemo story in the press and on television. It will be told dramatically to catch the eye and the ear. Note the appeal of Stonemo's low cost and its benefits. It's an educational campaign that will pay out for you.

2 **how much of your costly feed nutrients are your birds discarding as waste?**

You are interested in each of your poultry customers using good management. Good management means enough feed hoppers and grit hoppers. We are telling the story that at least one grit hopper is needed for every watering station. We believe that Stonemo Granite Grit is a part of good management. Gizzards never become clogged with litter, feathers, fiber. There is ample room for the feed you sell to produce eggs or meat. Feed nutrients are better processed with Stonemo for production—less are discarded as waste.

STONEMO - The Grit with the

slim, but he can lower his costs.

The cheapest way to feed is to feed all essential nutrients in correct nutritional and economical balance.

Advances Favor Industry, Feeders

The rapid pace of nutritional progress and change all point to an expanding market for better feeds and better feed service.

(1). More ingredients will be used. Ten years ago, one midwestern feed company used 29 ingredients and manufactured four feeds. Today, this same firm uses 63 ingredients and markets 20 different products. Some feed manufacturers have as many as 20 items on their price list.

More new ingredients are being made especially for the feed industry. The increased use of by-products, such as animal fats is well known. Remember, only 25 years ago soybean oil meal was an infant. Today, it is a giant. Other ingredients will come to the foreground as well. Paper mills in Wisconsin alone produce enough sulfite waste liquor to, in turn, produce an estimated 200,000 tons of wood yeast annually.

(2). More feeds for specific needs. Yes, there could be a much greater number of feeds offered to feeders as new facts and new requirements justify formulation. Before a new feed should be added, however, we should carefully weigh the fact that too many different feeds could mean more complicated feeding and more work for the feeder. We must also be aware that too many products can raise production and sales costs. The nutritionist and management should lead the way in product development but we should never get our laboratories too far from the feedlot.

(3). Feed ingredients are being improved. Soybean oil meal, alfalfa meal and other processors have made tremendous strides, to improve the quality of their products. I'm happy to see the meat scrap industry making increased effort towards greater standardization.

A few ingredients are still extremely variable. Such ingredients will either be improved and standardized, or their use in feed will gradually diminish. New ingredients may replace a few established ingredients. For example, there is question, today, regarding the availability to the animal of certain iron compounds commonly used in feeds. Improved iron salts could take over.

(4). Synthetics are here and more are coming. Research laboratories will give us more synthetic amino acids and vitamins. Human uses may help push the critical amino acids, lysine and tryptophane. Balance becomes very important when some of these nutrients are added.

(5). Antibiotic feeding is expanding. Penicillin, Aureomycin, Terramycin and Bacitracin are being used at new and varied levels for different classes of livestock and poultry. New antibiotics will quite likely challenge and supplement today's giants.

Special "high level" feeds for critical stress periods will draw interest. Economics to the feeder still will supply the final answer here.

(6). Rumen factors open a new big field. Rumen scientists have lifted the lid on many rumen secrets. Certain fatty acids, protein derivatives, and other chemicals with newly recognized properties have taken on new importance and are helping solve some rumen mysteries.

(7). Drugs and hormones are growing in importance. The use of drugs and hormones has increased tremendously and many predict a further increase.

These ingredients appear here to stay, but, thorough long-term research should continue to be a prerequisite before a new drug or hormone is accepted. Speeded up research has hastened the addition of some new drugs—but we can't overlook the possibility that it may be 25 years before we know all of the effects caused by some drug additions. There is a real challenge and a real obligation to test these additions carefully. Chemicals with hormone power but without some of the possible dangers would be a terrific addition.

(8). Enzymes offer new possibilities. Protein and carbohydrate splitting enzymes in pig rations look interesting. Here is an area, touched in the past, but well worth a closer look today. Calves and chicks may benefit, too.

(9). Other additives and growth factors will be introduced. Fifty years back, protein and energy were the recognized required nutrients. Today, a complete balanced ration includes fats, carbohydrates, proteins, minerals, vitamins, and antibiotics, and in some cases drugs and hormones. Tomorrow's ration will likely contain new drugs, still to be discovered

(Continued on page 64)

Carl Schaefer Anson Holland

APPOINTMENTS — Carl Schaefer has joined Geerlings Feed Mills, Inc., Waterloo, Iowa, as field supervisor. He was formerly with the International Sugar Feed Co., Minneapolis, and E. J. Knipschield, Charles City, Iowa. Anson Holland has been named sales manager for the Dr. Clarno Products Co., a division of Geerlings. He was formerly associated with the Standard Chemical Mfg. Co., Omaha.

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Recommendations for Poultry Industry Action Outlined at Indiana Meeting

INDIANAPOLIS — Committee reports which attempted to show "where we have been" and "where we are going" in the poultry industry were highlights of the 38th annual Indiana State Poultry Assn. meeting here at the Hotel Severin. More than 300 registrants representing all segments of the poultry industry attended.

One committee which has been studying the broiler situation and another which has been working on problems facing egg interests presented reports.

The broiler industry study committee summarized its report in five sections:

1. Where have we been? Indiana was a leader in the early broiler development due to its nearness to many of the metropolitan markets. Some of the areas within the state did not keep pace with the industry and have now dropped by the wayside, it was stated. In other areas the high value of land has provided greater opportunities for farmers in other phases of agriculture. Indiana has maintained a fairly constant number of broilers during the past five or six years.

2. Where are we going? The greatest recent broiler expansion in Indiana has been in the southern part of the state. More efficient poultry processing operations and closer working relationships between grower, feed supplier and processing interests are needed, it was felt.

It was the feeling of the group that certain geographical areas may have advantages due to a more plentiful labor supply, lower building costs, lower fuel costs and perhaps better feed conversion during temperate months. The feeling that greater community integration-interests of all business activities, whether agricultural or commercial in some areas have stimulated the growth of the broiler industry to a greater extent than in some of the northern states. Many Indiana poultry people feel that a more liberal financing program has been available in some areas than in others.

3. What do we want to do? The Indiana broiler industry expressed a very definite desire to continue to grow and to maintain its place in the nation's poultry industry.

4. How are these things going to be accomplished? What will have to be done? (a) Develop leader organizations that are forceful, with selling ability and encompass many different agencies and businesses. (b) Promotional program. Have allied industries and merchants clear across the board become interested and informed of the value of the broiler industry to their particular areas. (c) Face and live with integration. It cannot be sidetracked—it is here and will continue to grow by various methods. Integration in one area may not be of the same type that will work in another. It is the feeling of Indiana poultrymen that closer cooperation in many instances can accomplish the same as vertical integration that some other areas have accomplished. (d) It was suggested that a study committee be maintained to give further consideration to the problem.

5. The Indiana Broiler Industry will need to increase in size in the very near future. Some individuals feel that a 100% increase should be the goal in the next 1½-2 years.

The broiler committee was headed by Robert Merkle, Claypool, Ind., with Robert L. Hogue, co-chairman, and Jeff Kruse, secretary.

Egg Industry Report

The egg industry committee set up its premises with 14 different situations existing as a basis for their development and consideration. Some of the points developed were: Indiana is still a surplus egg producing state and is still one of the closest states to the major surplus egg areas of the country; a large volume of the eggs is still produced on farms with flocks of less than 400 hens; there seems to be a definite efficiency in production and marketing inherent in larger size flocks; egg marketing organizations serving Indiana are apparently hampered in varying degrees by higher costs in handling the relatively small number of eggs marketed from small flocks and in the lack of uniform high quality in the eggs marketed and by irregular volume of receipts.

The volume of quality eggs from the states west of Indiana seems to be increasing, it was reported. The group also recognized that there are several areas in states west and south of Indiana where organizations have already set up an integrated egg production program.

The following are some of the

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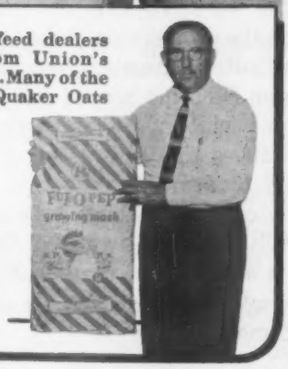
J. C. Snavely & Sons is a leading feed dealer in the fertile farm area of Lancaster County, Pa.



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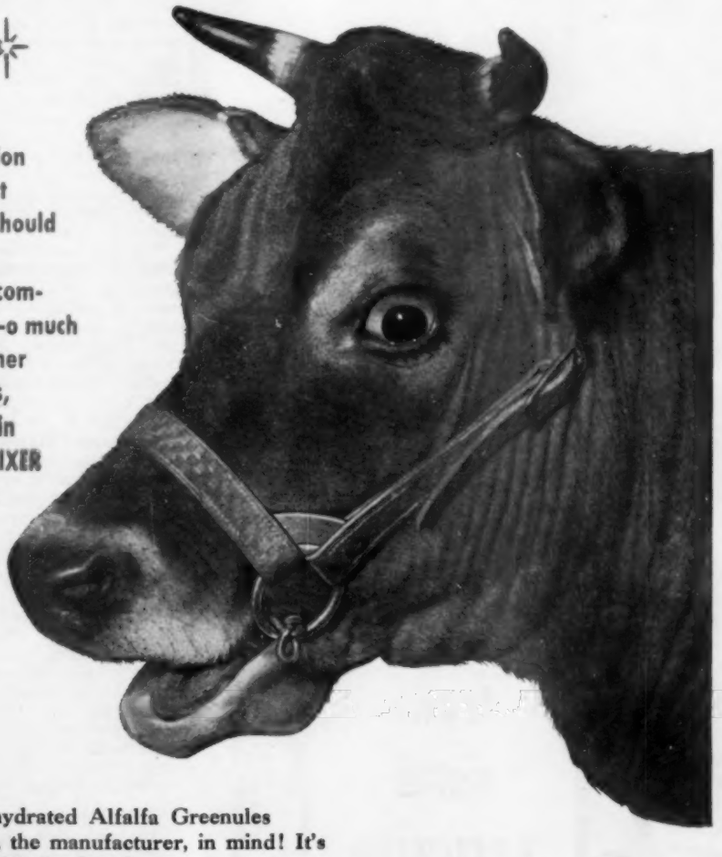

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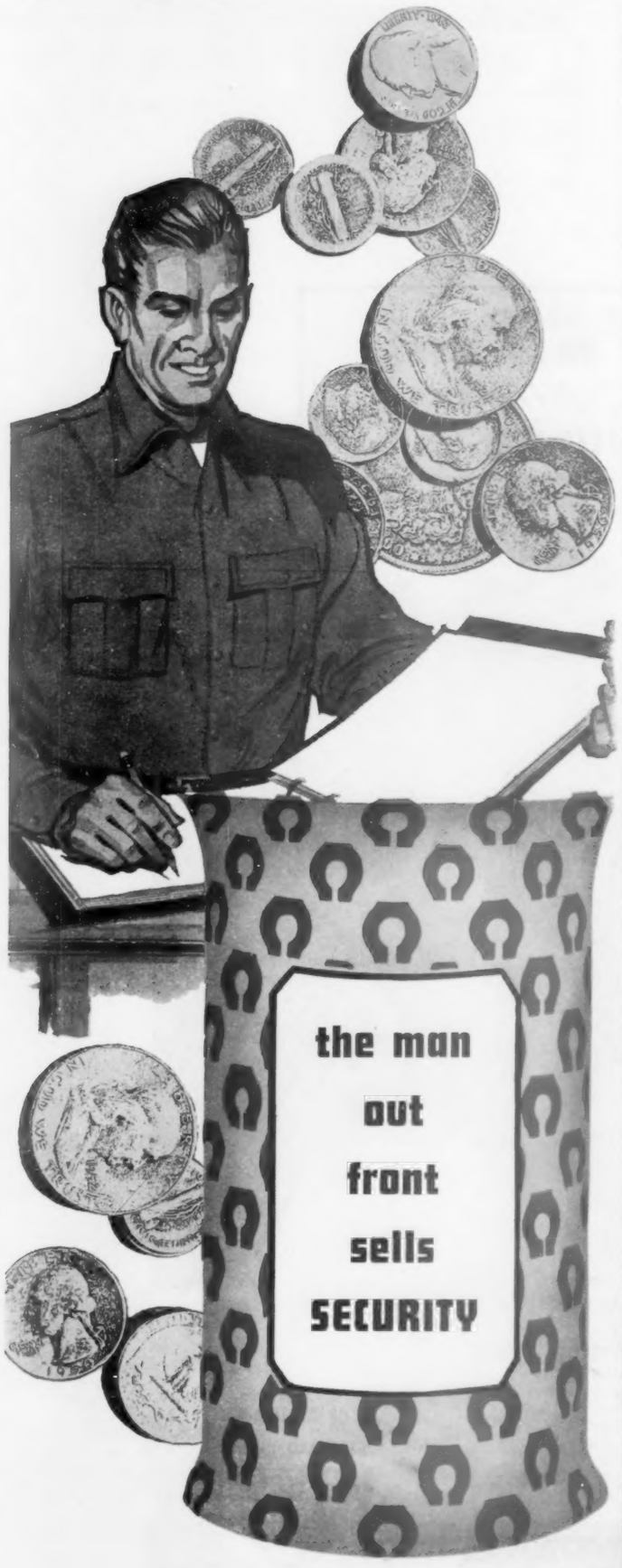

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suggestions of the egg study committee:

1. The Indiana poultry industry should take every action possible to keep the production of market eggs as a major component of the state's agriculture.

2. A large supply of high quality eggs will attract buyers from deficit areas.

3. A greater production of quality eggs in Indiana, if produced and marketed with sufficient efficiencies, will not result in lower returns to Indiana egg producers. Those who produce market eggs were encouraged to keep larger flocks, preferably a minimum of 800 to 1,000 birds.

4. Small flock owners were encouraged to increase their efficiency and the necessary finance for sound expansion was given as a goal.

5. Only the most improved egg production strains should be used for market egg production.

The egg industry committee reported that some form of integration within the egg industry will come, and in the over-all be beneficial, similar to what is taking place in the broiler industry. It is recognized that integration will be more difficult and slower in the egg industry than has been the case in the broiler industry because of the much longer lapse of time between the hatching of the chicks and the end of the laying year, the report stated.

The egg industry committee was headed by Max Shufelt, Portland, Ind., assisted by J. W. Sicer, extension poultryman of Purdue University. Secretary for the group was Paul Jackson, county agricultural agent at Warsaw, Ind.

The egg interests also heard "The Pros and Cons of Nicarbazin," a talk given by William Marion, department of poultry science, Purdue University; and "The Egg and You," by Dr. James Gwin, Poultry and Egg National Board, St. Charles, Ill. The broiler interests heard "The Broiler and You" by Dr. James Gwin, and "The Result to the Grower, Processor, and Housewife of Hormonizing Broilers" by Dr. William Stadelman, department of poultry science, Purdue University.

"What is This Synovitis?" was the subject of a talk by Dr. Damon C. Shelton, department of agricultural chemistry, University of West Virginia, Morgantown.

"Bronchitis—Let's Be Realistic"—Dr. George J. Christie, Livestock Sanitary Board, Indianapolis, Ind. Dr. Christie made a field report on some of his work which is jointly sponsored by the Indiana State Poultry Association, Department of Veterinary Science, Purdue University, and American Poultry and Hatchery Federation.

Cheaper Feed Prices

Dr. Richard L. Kohls, department of agricultural economics, Purdue University, spoke on the egg situation and implications for 1957. He predicted that:

1. Feed prices may be somewhat cheaper but that the egg-feed ratio will be mostly lower for the first half of 1957.

2. There may be some contraction in flock replacement.

3. The good producer should plan to stay in the business because more small cost producers will quit and efficient producers may find that larger flocks may mean lower costs.

4. Broiler supplies available for the next three months will result in continued very low prices—the bottom probably has not yet been reached; placements will continue at current levels through January, probably will move at prices somewhat below January-April, 1956, prices; a very modest increase in placements (5%) after January would probably move at prices near 19-22¢ levels to be obtained during April-August, 1957.

Among the speakers on the program was Dr. L. A. Wilhelm, manager of poultry research, Quaker Oats Co., Chicago, formerly executive secretary of the Indiana State Poultry Assn. He was presented with the annual "Golden Egg" award for his service to the industry and to the association.

L. H. Brown, Brown's Hatchery, Converse, Ind., was elected president of the association. Robert McFarling, McFarling Bros. Mid-States Poultry, Indianapolis, was named first vice president, and Floyd Strickland, Wayne Feed Supply, Princeton, Ind., was named second vice president. R. L. Hogue, Indiana extension poultryman, is secretary.

West Virginia Feed Sales Increase 15%

CHARLESTON, W. VA. — Commercial feedstuffs sold in West Virginia during the first six months of 1956 totaled 193,929 tons, an increase of 15% over the corresponding period of 1955, according to J. T. Johnson, commissioner of agriculture. The value of these feedstuffs amounted to $18,357,000, an increase of $1,606,000 over the same period of 1955.

The following tonnages were sold according to manufacturers' classifications: Poultry feeds, 113,021 tons, representing 58% of all feeds sold; dairy and other cattle feeds, 37,258 tons, 18% of the total; grain products feeds, 19,502 tons, 10% of the sales. Other livestock feeds for horses, hogs, sheep, goats and pets made up the remainder of the tonnage sold, the bulk of it being for horses, hogs and dogs.

Prices of most feeds moved slightly lower during the period and the increased value over the first half of 1955 was due primarily to the large tonnage sold. Poultry feeds represented 60% of the total value with broiler feed the leader. Broiler feed sales were 10,000 tons higher. The value of rabbit and pet foods was noticeably higher with dog food again the largest seller and fish food sales becoming prominent enough to be included in the report.

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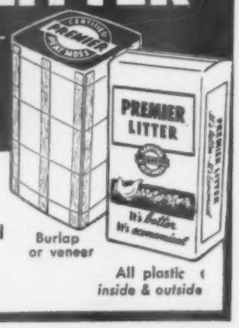

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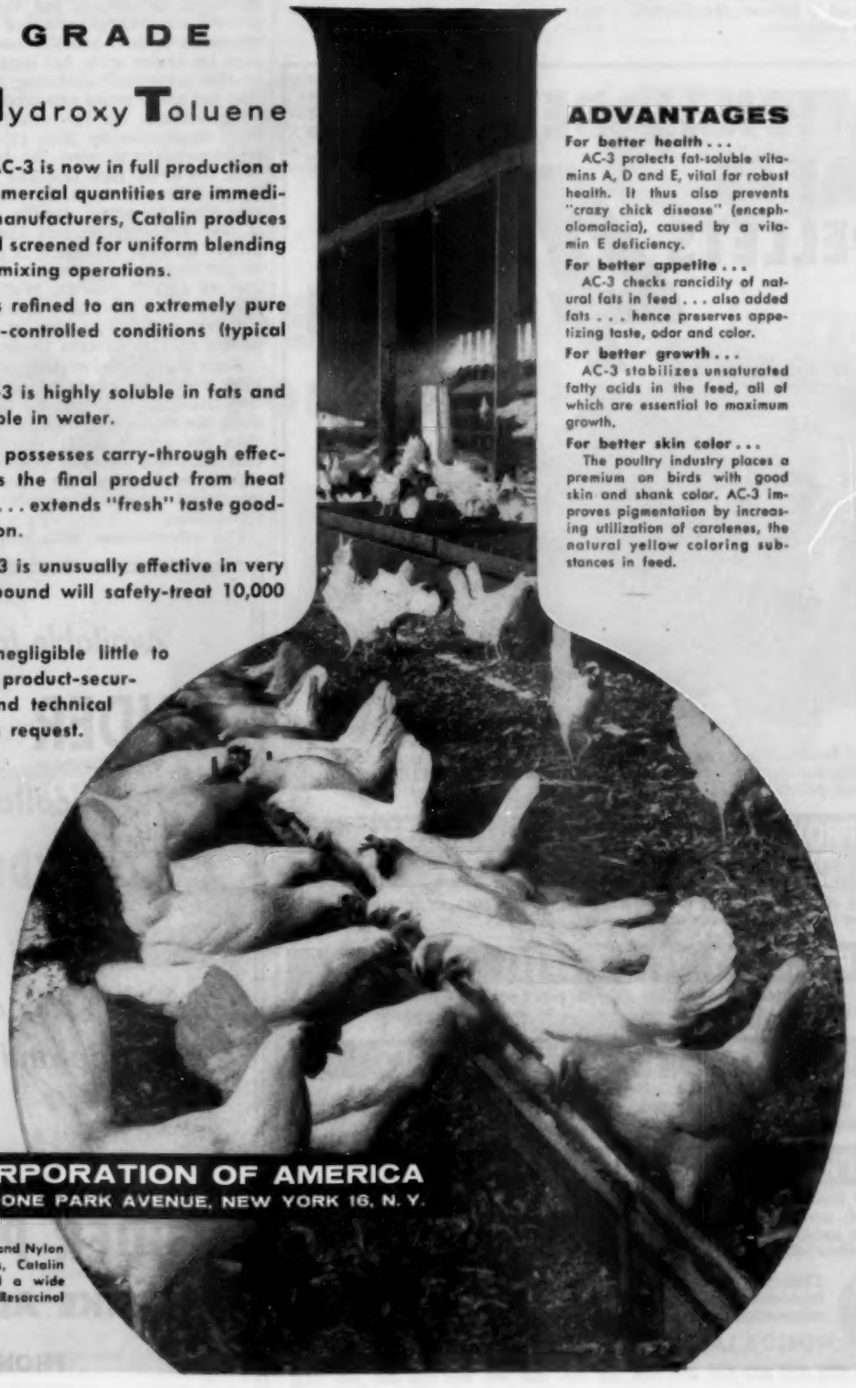

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Advances in Swine Nutrition

By Dr. J. A. Hoefer
Michigan State University

EDITOR'S NOTE: Some of the recent developments in swine feeding come in for attention in the accompanying article by Dr. J. A. Hoefer of the animal husbandry department at Michigan State University. Dr. Hoefer covers such things as protein levels in rations; B vitamins; early weaning and enzyme feeding; research on growth promoters, including some recent Michigan findings with sulfaquinoxaline; and methods of feeding hogs, including possible problems in making complete mixed feeds from a prepared supplement and grain. The article is the text of a talk at the Cornell Nutrition Conference.

Advances in swine nutrition are not always readily recognizable because of the frequency with which they are obscured by conflicting reports coming from the research worker, the farm press and the swine grower himself. This is not at all surprising since laboratory results must always pass the very exacting test of farm practice itself before they can be considered to be advances. And as all good researchers know, it is one thing to obtain a given result under the controlled conditions of the laboratory, and it is something else to get the same results under the varied conditions which exist in the farmer's hog lot.

The newer developments in swine nutrition represent the application of knowledge gained from fundamental research. It seems to me that the most significant development of the past few years is the fact that we are doing a better job of evaluating the information at hand and as a consequence new practices are the result.

Protein Levels

The changes that have taken place in the past few years in protein level recommendations are rather typical of what has been happening in swine nutrition. Of course, the fact that protein is a general term and doesn't represent what is actually needed by pigs, i.e. amino acids, has contributed to this somewhat confusing picture. Not too many years ago protein recommendations for the weanling pig were approximately 22% (1). Some recommendations were as high as 26% for 40-lb. pigs (2). The recommended protein levels for weanling pigs have decreased steadily until it is now an accepted fact that with proper nutrient balance it is possible to get excellent growth on diets as low as 14-16% (3, 4). With semi-purified diets good growth has been obtained with young pigs on rations as low as 11% protein (5, 6).

Since there is no evidence that the 1956 model pig needs any less protein than the 1940 pig, he must be using his amino acids more efficiently than his ancestors. It would seem that improved nutrient balance is a logical explanation for the above mentioned change in protein recommendations.

The effectiveness with which natural protein sources are used by the pig depends not only on amino acid balance but also upon many other factors. In a report made at the 1953 Cornell Nutrition Conference, Catron (7) listed some of the many factors affecting protein requirements of swine. A review of the literature makes it quite evident that any expression of the protein needs must be rather carefully qualified as to the conditions existing at the time the requirements were determined.

B Vitamins

The need of the pig for various B vitamins has been reported by numerous investigators. Recently Miller and Associates (8) at Michigan State University have concluded several experiments involving pyridoxine for the baby pig. An interesting observation in connection with this work is the fact that the amount of pyridoxine needed to support normal hemoglobin and RBC levels and to prevent the excretion of xanthurenic acid was almost 100% greater than the amount needed to support good growth. Although there was a highly significant difference in growth, this criterion was not as sensitive an indicator of pyridoxine nutrition as was either hemoglobin formation or xanthurenic acid excretion.

The anemia observed in the pyridoxine deficient pigs was a hypochromic, microcytic type which did not respond to iron and copper therapy. Tests with pair-fed pigs showed that the anemia which developed was the result specifically of pyridoxine deficiency and not the result of onorexia. Since anemia is still a major problem in practical swine production, it would seem desirable to investigate the pyridoxine nutrition of suckling pigs raised under average conditions.

Early Weaning—Enzyme

The weaning of pigs at something earlier than the once conventional eight weeks is now a common prac-

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J. E. Williams

SALES TRAINING—J. E. Williams has been appointed to Swift & Company's general feed department in charge of feed sales training, it has been announced by T. R. Colvin, department head. Mr. Williams, formerly assistant district manager at North Portland, will work directly with the company's general training division. He has a B.S. degree, with a major in agricultural education, from Sam Houston State Teachers College, Huntsville, Texas. He taught vocational agriculture two years, then was outside salesman for a large Texas feed store. Since joining Swift as a salesman at Plainview, Texas, in 1951, he has been specialty salesman at Ft. Worth, territory manager at Paris, Texas, and formulation man and grain buyer at Brownwood, Texas.

tice on many swine farms. Early weaning has been made possible by advances in nutrition, management and disease control. It is successful when strict attention is given to these factors, but it fails miserably if any are neglected.

Weaning early has many advantages but how early is still a question in the minds of many. Some have questioned the advisability of weaning earlier than three weeks. It is pointed out, among other things, that the type of ration needed when pigs are weaned at one to two weeks of age is very expensive and complicated. The recent work of Lewis and his associates (9) at Iowa State may supply the answer to this question. It has been known for some time that the digestive tract of the very young pig has certain limitations with regard to ability to digest nutrients coming from sources other than his mother's milk. Becker et al. (10, 11) and Lewis et al. (9) have reported enzyme insufficiency in the very young pig with regard to both carbohydrate and protein digestion.

All of the better pre-starters in use today contain a high percentage of dried milk products. This results in a high quality, nutritious product, but it is also costly. The Iowa work is encouraging in that the addition of a small amount of relatively inexpensive enzyme preparation offers the possibility of drastically reducing and perhaps even completely eliminating the expensive milk products.

It should be noted however, that enzyme production in the young pig becomes reasonably adequate at about three to four weeks, which means that there is less need for supplemental enzymes as the pig approaches this age.

The man who weans pigs at 10 lb. or less in weight will want the most nutritious pre-starter possible. This is not the time to practice false economy with nutrients. The evidence indicates an enzyme insufficiency in these young pigs and that it is helpful to add them to the ration.

For the man who weans at the somewhat more conservative age of three to five weeks, the addition of enzymes will pay a smaller dividend, if any.

The advantages of early weaning are many, and it is a practice that should be encouraged, but with reservations and qualifications. The man has to be able to provide certain things better and more economically than the sow. If he doesn't have excellent rations, housing and management available, and also something better for the sow to do than nursing pigs, then he is not ready to wean pigs at a very early age. In any event, it is best to gain experience gradually.

Growth Promoters

The very successful introduction of antibiotics to swine feeding approximately six years ago stimulated research for growth promoters on a very broad scale. Antibiotics, arsenicals and surfactants are now common-place additives to swine rations. In the absence of a clear cut explanation as to the mode of action of these growth promotants their success has been nothing short of phenomenal. That they are probably in some way concerned with control of bacterial infection in the digestive tract is reasonably well accepted.

Since the antibiotic effect is related to the disease level, it is not surprising that certain inconsistencies have appeared in the literature regarding the response to antibiotic feeding. There has been a tendency to attempt to offset this apparent failure to respond to the regular level of antibiotic feeding by feeding higher levels of antibiotic. Table 1 gives some results obtained at Michigan State University with varying levels of antibiotic (12).

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Table 1—Results of Feeding Varying Levels of Antibiotics (Nine Pigs Per Lot)

Lot No.	Ration	Initial weight	Final weight	Average daily gain	Average daily feed	Feed per lb. gain
1	Control	27.1	191.9	1.47	5.07	3.45
2	Control + Penstrep* 25 gm./ton	27.2	195.2	1.50	5.10	3.40
3	Control + Penstrep 50 gm./ton	27.1	200.8	1.55	5.33	3.44
4	Control + Penstrep 100 gm./ton	27.4	211.4	1.64	5.58	3.40
5	Control + Aureomycin 25 gm./ton	27.1	203.5	1.58	5.55	3.51
6	Control + Aureomycin 50 gm./ton	27.2	210.0	1.63	5.75	3.53
7	Control + Aureomycin 100 gm./ton	27.4	200.0	1.54	5.31	3.45
8	Control + Penicillin 100 gm./ton	27.1	197.6	1.52	5.24	3.45

*Penstrep—Penicillin and Streptomycin in the ratio of 1:3.

Table 2—Results of Feeding Aureomycin, Sulfaquinoxaline and a Combination of Sulfaquinoxaline and Streptomycin to Weanling Pigs (10 Pigs Per Lot—109 Days)

Lot No.	Ration	Initial weight	Final weight	Average daily gain	Average daily feed	Feed per lb. gain
13	Control	23.8	172.3	1.36	4.49	3.29
14	Control + Aureomycin 10 gm./ton	23.7	196.6	1.59	5.22	3.29
15	Control + Aureomycin 50 gm./ton	23.7	195.8	1.58	5.26	3.33
16	Control + Sulfaquinoxaline 50 gm./ton	23.7	187.5	1.50	4.95	3.30
17	Control + Sulfaquinoxaline 25 gm./ton—Streptomycine 25 gm./ ton	23.4	193.8	1.56	5.12	3.27
18	Control + Sulfaquinoxaline 50 gm./ton—Streptomycin 50 gm./ ton	23.6	196.4	1.59	5.17	3.26

of 25, 50 and 100 grams per ton to the basal ration increased the rate of gain 2.0, 5.4 and 11.6% for the respective levels. In the case of Aureomycin the 25, 50 and 100 gram additions increased the gain 7.5, 10.9 and 4.8% respectively. For some reason the Aureomycin at 100 grams per ton was not as effective in increasing gain as the lower levels of supplementation. Penicillin was added at just the one level of 100 grams per ton, and the gain was increased 3.4% over that of the basal.

During this past summer some additional comparisons involving antibiotic levels and a coccidiostat, sulfaquinoxaline, were made (13). The results are shown in Table 2.

In this trial all additions to the control ration increased growth rate, with the greatest stimulation coming from the 50 gram level of Aureomycin and the combination of sulfaquinoxaline and streptomycin (50 grams each). There was, however, very little difference between the various additives. Under the conditions of this experiment, the higher level of Aureomycin (50 grams) did not improve performance over the lower level (10 grams). The existing disease level would probably be a factor in these results.

The growth stimulation from sulfaquinoxaline is interesting since there is no evidence that we are aware of to indicate that coccidia are a problem in growing swine, or that this compound acts in a manner similar to an antibiotic.

Methods of Feeding Hogs

The way in which hogs are fed has implications which are both practical and scientific. The hog feeder is concerned with labor, feed preparation costs, equipment needs and results; the nutritionist is concerned with meeting the nutrient needs of the animals with the most efficient combination of ingredients; and the feed manufacturer represents a service industry trying to satisfy the needs of both groups. The problem is a complex one because it involves so many diverse factors.

Supplement formulation for swine centers around the need to make up the deficiencies of the cereal grain. These deficiencies are well known in a general sense as protein, minerals and vitamins. In general, the solution has been to prepare a supplement with the above mentioned nutrients and then self feed it free-choice along with corn. It is obvious that if this program is to work effectively, the pigs must (1) select the correct proportions of corn and supplement, and (2) their need for the nutrients present in the supplement must change at the same rate.

There is no denying that self-feeding free choice has been popular and also successful to a certain degree.

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3-DAY TRIPS—P. G. Delaney, Moncton, N.B., a feed salesman for the Quaker Oats Co., Chicago, shakes hands with H. Earle Muzzy (right), vice chairman of the board, during Mr. Delaney's three-day visit to Chicago. John Hunter, Quaker product manager at Peterborough, Ont., is making the introductions. Twenty-eight dealers and salesmen from the Maritime Provinces, Ontario and Quebec won three-day trips by surpassing their sales quotas. During the trips visits were made to Chicago points of interest, the company's research farms in northern Illinois and research laboratories at Barrington, Ill.

It is reasonable, however, to raise certain questions concerning this widely accepted practice. With regard to the feed selection made by the pig, there is a great deal of evidence to indicate that his choice will depend more upon palatability than nutritive completeness. Because pigs do not always balance their intake in the most efficient manner, particularly during the period from weaning to 75 lb. in weight, there has been a definite increase in the use of complete mixed rations. With the mixed ration comes a problem—how should it be made? In general there are two procedures: (1) Build it from the ground up by treating each ingredient independently, or (2) by adding a given amount of supplement (already mixed) to the grain and mixing the two together. It is obvious that by the latter method the supplement serves as a carrier for protein, minerals, vitamins, antibiotics, etc., and when the mix is changed for protein content, all other supplementary nutrients are changed to the same degree.

Certain nutrient imbalances are created when the complete supplement plus grain method is used in making a mixed ration. This has been recognized for some time but was thought to be of no consequence. However, the recent reports linking parakeratosis with calcium and zinc raises a question concerning the advisability of using the conventional supplement as a carrier for all nutrients needed to make up the deficiencies of corn.

Using National Research Council nutrient requirements as a basis for calculation, the following data are presented. If corn and a 35% supplement are used in making a mixed ration for a 150 lb. pig, the proportions would be 85:15. In this ration the supplement would have to contain at least 3.5% calcium in order to meet the .55% calcium requirement indicated by NRC. Now if these same feeds are used to make a mixed ration for a 25-30 lb. weanling pig, the proportions would be 65:35 based on the 18% protein standard of NRC. However, in this case the calcium content of the ration would be 1.2%, which is greatly in excess of the pig's needs and in our experience (MSU) would produce parakeratosis.

The above problem can be avoided by mixing rations from the ground up. This solution is not a particularly practical one because it can be used only by a small minority. The addition of zinc at the rate of 50-100 ppm will aid greatly in offsetting the deleterious effects of the excess calcium.

Omitting the mineral from the supplement and feeding it free choice has been suggested as a means of avoiding excessive calcium intakes. This method has much to recommend it, but in a recent trial (14) it was not 100% effective in preventing the appearance of skin lesions (parakeratosis).

Summary

Advances in swine nutrition are the result of improved application of knowledge gained from fundamental research.

Nutrient balance has been improved with regard to protein, B vitamins and minerals. Antibiotics and other growth promoters are making a major contribution to practical swine production.

Improved nutrition, including specific enzyme preparations and better management, have made early weaning of pigs a practical reality.

Certain practical problems have developed concerning the most economical and effective methods of feeding hogs and formulating supplements.

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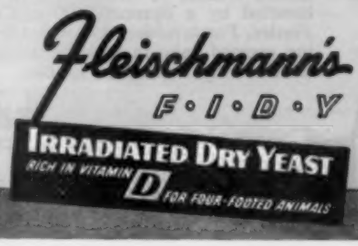

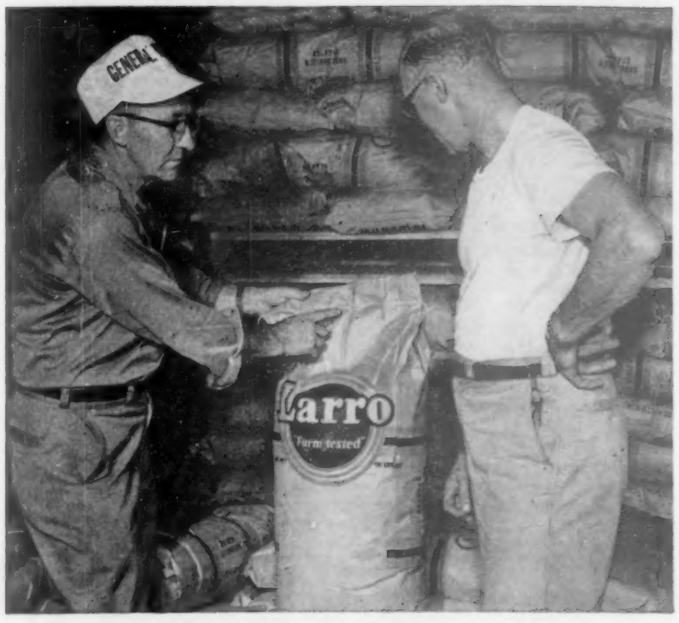

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Reducing Poultry Feed Costs By the Use of Separate Rations for Males and Females

● By Dr. H. Yacowitz

EDITOR'S NOTE: The possibility of reducing poultry feed costs through separate rearing and feeding of males and females is pointed out in the accompanying article. Dr. H. Yacowitz—now with the Squibb Institute for Medical Research, New Brunswick, N.J., and formerly on the Ohio Experiment Station staff—outlines some of the nutritional and economic aspects of separate rations for males and females. He says that the use of separate rations will not only be important in poultry production but also will result in improved efficiency in production of swine, cattle and other livestock. This article is an abstract of a talk by Dr. Yacowitz at the Texas Nutrition Conference at Texas A&M College.

The efficiency of broiler and turkey production has increased phenomenally during the past decade. Increases in growth rate and feed efficiency were accomplished, in large part, through the use of antibiotics, arsenicals, fats, low-fiber rations and improved breeding stock. Further improvements in the efficiency of poultry production are still to come. A simple, but sure, way of improving production efficiency is through the use of separate rations for males and females.

The purpose of this discussion is to stimulate research and thinking regarding differences in the nutritional requirements of male and female chickens and turkeys. Research in this field will lead to the use of separate rations for males and females. The savings in feed costs and other benefits derived from the separate rearing and feeding of males and females will undoubtedly result in improved production efficiency.

In chicken broilers, the difference in the growth and feed efficiency of males and females becomes greater with age. At market age (9 to 10 weeks) the male broiler weighs approximately 20% more than the female and is about 10% more efficient in utilizing feed. These figures vary, of course, with different strains and breeds of broilers. In the case of Broad White turkey broilers, males weighed as much as 40% more than females in some experiments conducted at the Ohio Agricultural Experiment Station. Tables 1 and 2 illustrate the difference in the growth and feed efficiency of males and females.

Physiological Differences

Research on broiler age chickens has shown that pituitary and adrenal glands of males are significantly larger than in the case of females. Females have been shown to have a lower metabolic rate than males.

It is well established that females are higher in fat content when compared with males. The difference in fat content is due, in part, to the estrogenic hormones secreted in the female. The more rapid growth and better feed efficiency of male chickens and turkeys are primarily due to the secretion of the male hormone, testosterone. This has been demonstrated in reports by Almquist (1952), Ma (1954) and others.

Differences in Nutritional Requirements

Studies on nutritional requirements show that rapid growth rate is accompanied by increased need for nutrients. This implies that males, since they grow more rapidly, should have higher nutritional requirements. A search of the literature reveals some interesting differences in the nutritional requirements of males and females. In general, the male has the higher nutritional requirements.

Data show that male chickens and turkeys have higher requirements

Table 1—Comparison of Weight and Feed Conversion of Male and Female New Hampshire Broilers*

Age	Weight—Males lb.	Weight—Females lb.	Weight of males above females	Feed conversion Males lb. feed/lb. wt.	Feed conversion Females lb. feed/lb. wt.	% Less feed consumed by males per lb. of weight
4 weeks	0.95	0.88	8%	1.74	1.84	5%
10 weeks 4 days	3.78	3.14	20%	2.96	3.26	9%

*Data from approximately 30,000 cockerels and 4,000 pullets. Reported by J. S. Higgins of Maine.

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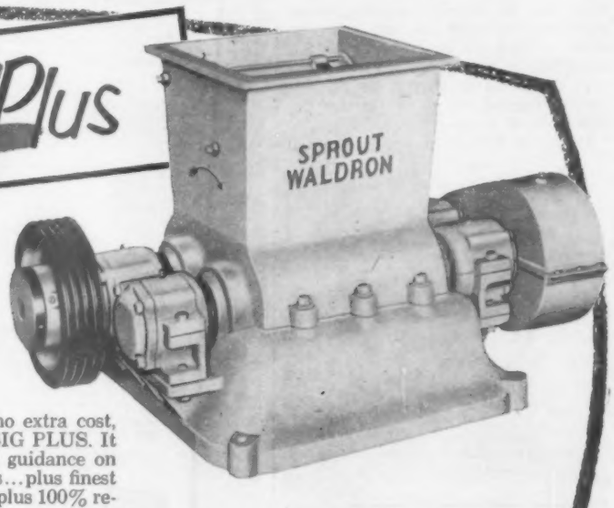

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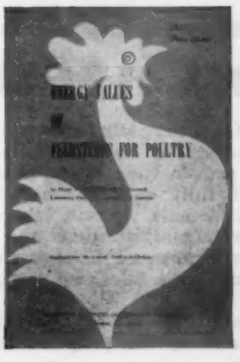

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Table 2—Comparison of Weight and Feed Efficiency of Tom and Hen Beltsville White Turkeys*

Age weeks	Weight—Toms lb.	Weight—Hens lb.	Wt. of Toms above hens	Feed efficiency Toms lb. feed/lb. gain	Feed efficiency Hens lb. feed/lb. gain	% Less feed required by Toms per lb. of gain
4	1.0	0.8	25%	2.2	2.1	...
8	3.0	1.8	67%	2.5	2.7	7%
12	6.1	3.8	61%	2.6	2.8	7%
16	9.8	6.3	56%	2.9	3.1	6%
20	12.2	7.8	56%	3.5	4.3	19%

*Data adapted from report by Dr. M. L. Scott, Turkey World, January, 1956, page 34.

than females for protein, energy and certain minerals. There is also some evidence that the requirements for unidentified growth factors differ in the male and female.

Economy of Separate Rations

At the present time chicken and turkey broiler rations are overformulated. By this I mean that they are formulated to meet the maximum requirements of either the male or female. When quantitative data on the requirements of each sex have been accumulated, it should be possible to formulate rations for females which will be lower in protein, fat, antibiotics, phosphorus and probably other nutrients when compared with rations for males. This will mean a reduction in feed costs.

Approximately $400 million worth of manufactured broiler feed will be used in 1956. Half of this feed will be consumed by female broilers. It is evident that a few percent reduction in feed costs will result in a substantial savings to broiler producers. A reduction of 5 percent in the cost of feed for female broilers, which is quite possible, will result in a savings of about $10 million a year.

Other Benefits

The poultryman who raises males and females separately can take advantage of different marketing times for each sex. In addition he will be marketing more uniform birds. Another benefit of separate rearing is the opportunity to use hormone treatments which affect males differently than females. For example, there is good evidence that testosterone injections will increase growth and improve feed efficiency of female chicks and turkeys but this hormone has a detrimental effect in males (Almquist, 1952; Ma, 1954).

In the future, we can probably look forward to the development of male hormone preparations which are orally effective and will be fed to female broilers and turkeys. There is also some evidence that feeding iodinated casein increases the weight of males but has no effect in females. Here again is a case where separate rations for males and females would be advantageous.

The use of separate rations for males and females will not only be important in poultry production but will also result in improved efficiency in the production of swine, cattle and other livestock.

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Elvy S. Harrop, Jr.

IN SALES WORK—Elvy S. Harrop, Jr., has become affiliated with the sales staff of the animal and poultry nutrition department, Van Waters & Rogers, Inc., Dallas office, it is announced by J. H. Sanders, manager. Mr. Harrop is a graduate of East Central State College, Ada, Okla., with a B.S. degree. He also attended the University of Missouri, where he majored in poultry husbandry. For the past eight years he has been employed by one of the leading feed mills of Oklahoma in sales work. The animal and poultry nutrition department of Van Waters & Rogers serves the southwestern area of the U.S. and is one of 14 offices of the Seattle-based company.

Wyoming Tests Hormone Implants

LARAMIE, WYO. — Body gains of yearling steers increased 31% after 36 milligrams of the hormone stilbestrol was implanted at the base of the ear of each animal, according to Wyoming Agricultural Experiment Station researchers. The same dosage gave only a 7% increase in gains of yearling heifers.

The results came in trials led by Conrad Kercher, station animal nutritionist, from June 19 to Aug. 29. Each of 91 steers and 72 heifers received about 35 lb. of green chopped forage and 7 lb. of grain per day.

The steers were divided into five groups. One group received no hormone and the others were implanted with different amounts. All steers were fed as one group, the heifers as another group.

The results of the stilbestrol implantation in steers showed: No stilbestrol, 2.13 lb. average daily gain; 24 mg. stilbestrol, 2.63 lb.; 36 mg., 2.79 lb.; 48 mg., 2.59 lb.; 60 mg., 2.52 lb.

In heifers, the results of implantation were: No stilbestrol, 1.97 lb.; 36 mg., 2.11 lb.; 60 mg., 2.03 lb.

Steers implanted with stilbestrol suffered no bad side effects, but heifers with the hormone showed some udder and teat development.

The green-chopped forage was an alfalfa, oats, and alfalfa-and-brome mix. The grain mix was three parts of steamed-rolled barley to one part of beet pulp pellets. No cases of bloat were observed.

Mr. Kercher said that the trials indicate that 36 mg. of stilbestrol is the proper dosage for steers on a limited grain fattening program. The small response of heifers to stilbestrol implanation, he said, might not justify the effort.

William J. C. Leslie Joins Werthan Bag

NASHVILLE, TENN.—William J. C. Leslie has joined the sales division of Werthan Bag Corp. and will make his headquarters at the company's general offices at Nashville, Tenn. Mr. Leslie comes to Werthan with varied experience in selling and sales administration. His previous position was as manager of sales and advertising for Godchaux Sugars, Inc., New Orleans.

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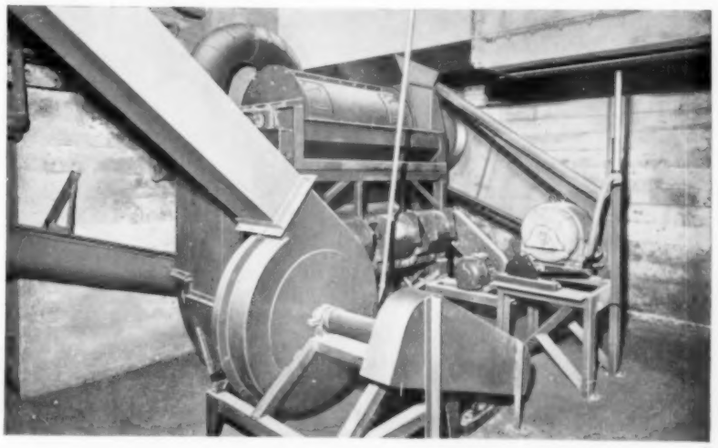
CORN SHELLING BOTTLENECKS

with

TRIUMPH No. 1200* CORN SHELLER CLEANING ATTACHMENT AND COB BLOWER

*Patent Applied For

View at right shows one of the two simple, proven Triumph No. 1200 Corn Shelling systems at the world famous Anderson Truck Terminal, Maumee, Ohio. These compact systems shell the corn; remove and blow away husks, silk and small trash particles with the cobs; discharge up to 1200 bushels of air cleaned shelled corn per hour. Six more Triumph No. 1200 Corn Shellers were installed by Anderson during 1955.



Listed below are just a few of the plants that already have installed two or more

TRIUMPH No. 1200 CORN SHELLING Systems

Saginaw Grain Co. . . . . Saginaw, Mich.
Anderson Truck Terminal . . . . . Maumee, Ohio
Wolfe Grain Co. . . . . Shipshewana, Ind.
Cooperative Mills, Inc. . . . . Seaford, Del.
Farmers Grain & Coal Co. . . . . Mason City, Ill.
Clinton County Farm Bureau . . Wilmington, Ohio

Southern Plants! Ask us about the Triumph No. 1200 Shuck Sheller

Semi-trailer Loaded with 22 Tons of Ear Corn is Dumped and the Corn Shelled and Air Cleaned in 30 Minutes with a

TRIUMPH
No. 1200
CORN SHELLING SYSTEM

TRIUMPH Division
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6249 HARVARD AVENUE, CLEVELAND 5, OHIO

☐ Send me fully descriptive literature about your No. 1200 Shellers.
☐ Send a Sales Engineer.

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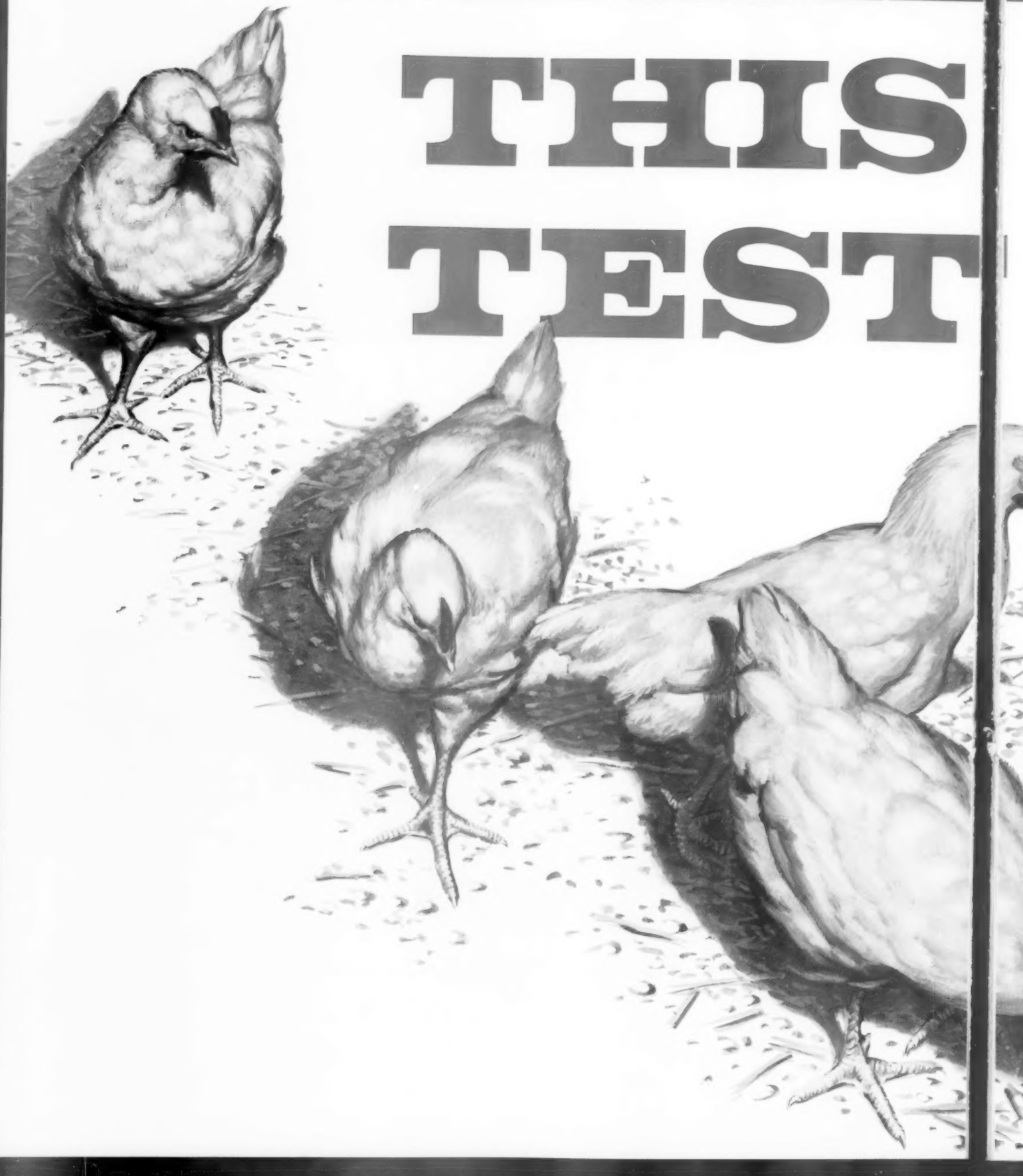
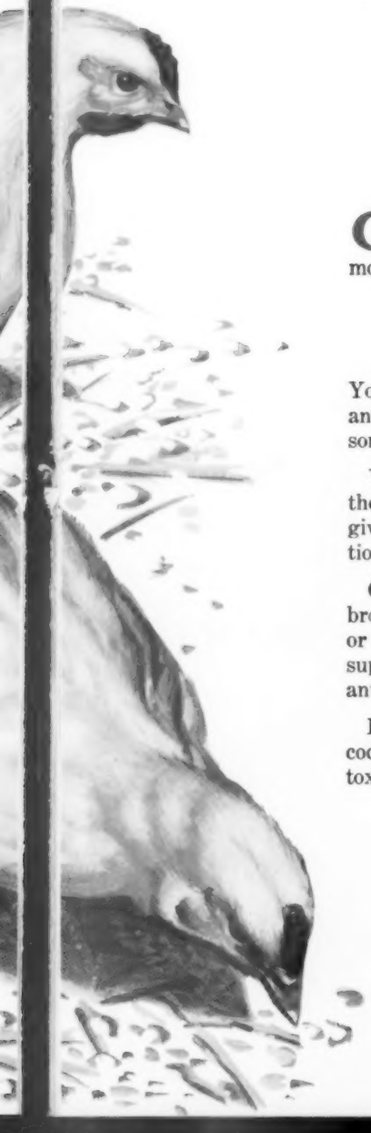


Prove to yourself that your investment in financed birds can give you a better return



OF the many factors that lead to better returns on your investment, these three are undoubtedly the most important:

1. Higher market price
2. More pounds at market
3. Lower producing cost

You can do nothing about the *first* one. But the *second* and *third* factors are within your control. You can do something about them.

You can determine, through careful test and analysis, the feed ingredients to use in your broiler feeds that will give the best return on your investment. You are in a position to do this: your broiler-raising customers seldom are.

Consider one of the most important ingredients in a broiler feed; an anticoccidial. Assume that two or three or even four well-known anticoccidials do equal jobs in suppressing coccidiosis. How then should you judge these anticoccidials from an investment angle?

Does *one* of them give a more favorable balance between coccidiosis control and freedom from growth-inhibiting toxicity?

Does *one* of them, through this favorable balance, provide a fraction more pounds per bird at market? Even a small increase in yield per bird can mean a substantial difference in returns on a flock at market.

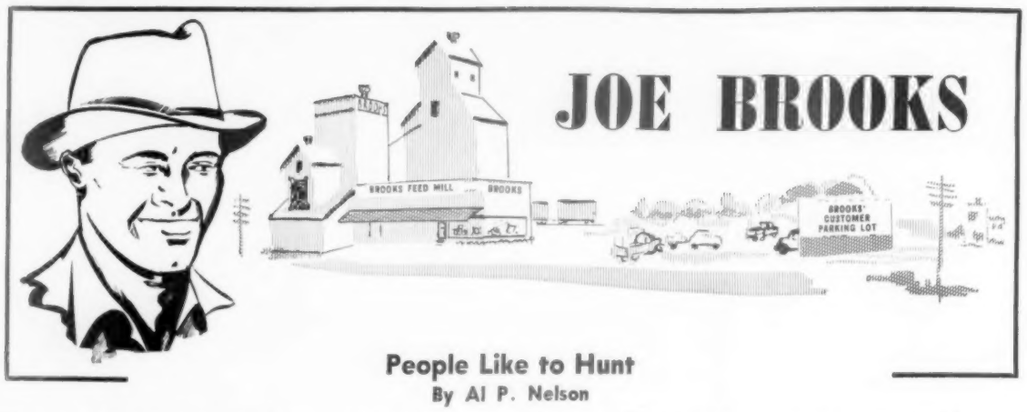
Does *one* of them, through this favorable balance, permit birds to use their feed more efficiently? Even a shade of difference here can mean considerable savings in feed and in the cost of producing birds.

The one anticoccidial that best answers these 3 questions is MEGASUL® Nitrophenide. Tests, many of them conducted during the past year, bear out this statement—show that *MEGASUL can give you a greater return on your investment.*

But you should find out for yourself. Make a test. Divide a flock of birds into 2 groups. Feed MEGASUL to one group. Feed *any* other anticoccidial to the other group. Keep accurate records. Compare! Let your cost figures and your returns give you the answers.

American Cyanamid Company, Animal Feed Department, 30 Rockefeller Plaza, New York 20, N. Y.

CYANAMID



People Like to Hunt

By Al P. Nelson

It was a blustery November day, and dark clouds, with a threat of snow were skidding across the sky. Some oak leaves still skidded noisily across concrete sidewalks and asphalt covered streets, as Joe Brooks made his way downtown in Hansen's Creek. He wore a fur cap, short grey storm coat and his hands were mittened.

Joe turned in at the Northwoods Sport Shop, a classy store whose front was partly stained knotty pine and the rest of the area window glass. A neon sign flashed a red outline of a deer, then a rabbit, then a bear and finally a moose. Ken Durr, the red faced, portly owner always got kidded about that moose neon outline, because there were no moose in the immediate area, but he always said to doubters, "Don't talk so fast. Maybe someday a herd of moose from Canada will drift down this way in search of food, and then I'll have the laugh on you guys."

Now, as Joe walked into the sporting goods store, portly Durr, clad in red checkered flannel shirt and corduroy pants, looked up from the counter where he was arranging some stock.

"Hi, Joe," he said. "Going deer hunting this year?"

"I don't think so," Joe said. "One of my men is down with the flu, and my family wants me home this year. Guess I'll skip a year."

Rejuvenation Needed

"Too bad," Durr said, shaking his head. "A man should never be too busy to go hunting or fishing. Money ain't worth that much. You gotta get out once in a while and commune with nature. That's why this is a great field. I've seen many a man rejuvenated by hunting and fishing trips."

"Or drowned in camp by Coca Cola or poker debts," Joe commented.

Durr shrugged his heavy shoulders. "Oh, well, you'll always find fellows in every town who go overboard. But not all."

"Ken," said Joe seriously. "How would you like to win more farm trade?"

The sporting goods dealer's brown eyes lighted. "Swell, Joe. You know, farmers are some of my best customers. They like to hunt, especially. They've got game on their own farms, and in fall and winter, they do a lot of hunting. Sell lots of guns and ammunition to farmers, I do."

Joe Has an Idea

Joe nodded. "I figured that way, Ken. How would you like to put in a darn good hunting window in my feed store? You know, something complete with the picture of a hunter holding a gun, a hunting dog, cornstalks, a log, shells, hunting clothes, pumpkins, squash, anything like that for atmosphere."

Ken Durr looked closely at Joe, then chuckled. "Sounds all right from my angle. I could reach a lot of farmers with a window at your place. But what's your angle? I know you well enough to know you have an idea in mind, Joe."

The feed dealer laughed good naturedly. "Sure, I figure we can work together on this for mutual benefit, Ken. You put in this dandy window, and I'll have a big sign in the corner saying the window was trimmed by you and that you furnished the sporting goods."

"Yeah?" encouraged the sporting goods dealer.

"Well," went on Joe, "then I will have another sign in the window, saying 'Men . . . go out and get that deer and those rabbits . . . then come in and talk over your feeding program with us. We'll help you hunt for bigger profits with a balanced feeding schedule.' "

The sporting goods dealer began to

Lilly

REPORT TO THE FEED INDUSTRY

"We've produced beef cheaper and faster than ever before..."

Named "outstanding young farmer of the year" by Norwalk, Ohio, Jaycees, James Yingling credits supplements with 'Stilbosol' with "best gains we've ever had."

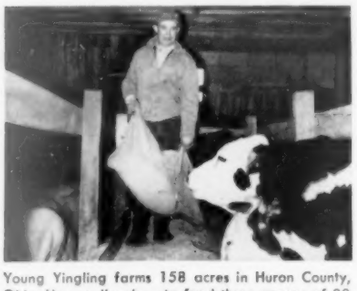
by Eugene S. Hahnel

Because he bought all the feed, James Yingling was able to keep extremely accurate records on 21 head of western, grade Angus steers. His drylot ration consisted of ground corn and cob, mixed hay (alfalfa-timothy-clover), and a supplement with 'Stilbosol.' His steers averaged 2.5 pounds gain a day, at a cost of only 13.4¢ per pound of gain . . . over a feeding period of 210 days.

Yingling was pleased with the job 'Stilbosol'-fortified supplements did for him. "We've had the best gains on 'Stilbosol' that we've ever had," he reports. "We've kept accurate records this year and produced beef cheaper and faster than ever before. We're glad this new development is available to cattle feeders."

"Our feed dealer . . . knows what he's doing" — James went out of his way to comment on the help he got from the feed industry. "Our feed dealer is always anxious to help us. He knows what he's doing, knows our problems, and is always ready to help. Any time we have a problem he can't solve, he gets in touch with the feed manufacturer's representative and we get immediate service. In our opinion the feed manufacturers are doing a good job of bringing 'Stilbosol' to the feeder. We think it's wonderful."

Yingling (left) and Clint Missler, feeding advisor (right), work closely together to make the fastest, most economical gains with Yingling's cattle. Clint first convinced James he would profit by feeding supplements with 'Stilbosol.'



Young Yingling farms 158 acres in Huron County, Ohio. He usually plans to feed three groups of 20 head a year. Ten brood sows following his cattle are doing fine. The story of this young farmer will be read by cattle feeders throughout the country in Lilly ads in 15 farm magazines.

Lilly products for the feed industry

PROCAINE-PENICILLIN-G
CALCIUM PANTOTHENATE
VITAMIN B_{12}
'STILBOSOL'

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Stilbosol
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Dr. Cletis Williams

APPOINTEE — The appointment of poultry geneticist, Dr. Cletis Williams, to the staff of the Honegger breeder hatchery at Forrest, Ill., has been announced by Dr. George F. Godfrey, vice president and executive director of the hatchery. Dr. Williams will assist Dr. Godfrey with Honeggers' poultry breeding and experimental program. Dr. Williams was formerly assistant professor of poultry husbandry at Oklahoma A&M College, Stillwater. He earned both his B.S. and M.S. degrees in poultry husbandry at Oklahoma A&M and received his Ph.D. in genetics and poultry from the University of Wisconsin. He also taught poultry science at the University of Georgia and did research work at the University of Wisconsin.

laugh. "You don't miss many merchandising angles, Joe."

"Well," Joe replied modestly, "in these competitive days, we have to think of ideas which tie in with merchandising opportunities. Farmers will look eagerly at hunting windows right now. I plan to put a sign on the hunter's gun in that window, which will say 'I'm hunting for more farm profits' and then on the hunting dog there will be a sign, 'Balanced feed program' and these will help to get the idea across."

"Say, that's not so bad," commented Durr. "If I were a farmer I'd go for a display like that, I think. This will be a good deal for me, Joe. Thanks for thinking of me. I'll really make up an atmospheric display for you. If I sell a couple of guns out of the deal, I'll even take you and Mary to a steak dinner."

Joe began to grin. "Say, that would be an extra dividend for me on the deal, Ken. My wife and I sure like steak dinners. Would—would this dinner be at the Fox & Hounds out in the Kettle Moraine country, maybe?"

"How did you guess," Ken grinned. "My wife and I like that spot, too. It's tucked back in those hills and so quiet and restful. Gosh, even if I don't sell a couple of guns on the strength of that window display, I may take you and Mary out there to eat anyway. I need an excuse, you know." And Ken laughed uproariously.

"That gives me an idea," Joe stated. "Every farmer who comes in and talks over a feed program with us—a serious one—based on that hunting window, can put his name in a box, and I'll select one name and that farmer gets a free steak dinner —his wife accompanying, of course— at the Fox & Hounds Inn."

Ken Durr laughed. "Select one more name outa that box for a consolation prize, Joe, and I'll treat the winner to a dinner at Happy's Hamburger stand, across the street. We sure won't play any favorites in this deal."

Joe looked absolutely delighted. "Say, this is developing into a better deal every minute, Ken. I knew I could count on you. It just goes to show what can happen when a couple of businessmen get together and try to cook up publicity and traffic building ideas."

"That's it," Ken said pointedly. "I never could see this business of a retailer sticking in his own store, afraid of helping the other guy. Seems to me that when you start helping the other guy, you wind up helping yourself, too."

"That's right," Joe agreed. "These things sorta open up a man's mind, don't they, and let fresh ideas in? And with this hunting window, we are not asking the farmer to buy anything. He just has to listen to us tell him the story of better feeding. After that, his brain will fertilize that beginning idea."

Kentucky Seeks Site for Agricultural Research

LEXINGTON, KY. — Gov. A. B. Chandler of Kentucky has indicated that a new site is being sought for the location of the University of Kentucky's agricultural research operations. The governor told the Fayette County Farm Bureau recently that the proposed site would be some 1,100 acres in size.

The university also needs, and according to the governor, "is going to get," a basic sciences building which he hopes will be ready about the time the university's new medical school opens in 1959.

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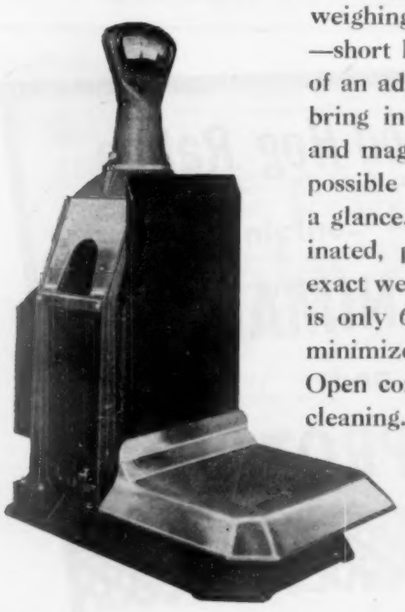

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Modernization, New Equipment Build Idaho Dealer's Business

By Jess F. Blair

"We've tried to gear our operations to the type of farming done in this area," said R. R. Willecke, co-owner of the Farmers Feed & Seed Co. at Pocatello, Idaho. "Since it is a region of diversified farming, that means we handle a little of everything."

Mr. Willecke says the $250,000 gross business can be broken down to about one third for feed, one third for farm chemicals, while the remaining one third comes from the sale of equipment to hog and dairy farmers and to ranchers. Also in this category is included the sale of irrigation equipment, garden and lawn supplies.

Mr. Willecke, who has been manager of the store since 1937, has helped it grow from a tiny feed store to one of the largest in its part of Idaho. When business outgrew the original facilities, he built the new plant and added all new equipment. He now has a mixer, steam roller and grinder, besides a 9,000-bu. elevator located just back of the store building.

Unloading grain from the farm trucks is a simple operation. Farmers drive onto the scales located in one side of the building. After being weighed, they drive onto the slatted floor over a grain bin and unload. The grain spills down through the slats, where it is then picked up mechanically and carried into the elevator. Thus during the grain buying season, customers never have to wait more than a few minutes to unload their trucks.

Good Equipment Needed

"You can't do business in this area without good equipment," said Mr. Willecke. "Our growing season is short here in Idaho, and when harvest comes, everyone works long hours every day to get the crop in. A dealer must be able to take care of it properly and in a hurry."

The feed sales go mostly to dairy and hog farmers and to cattle ranchers. There are also a few poultrymen and dozens of rabbit and pet fanciers in the Pocatello area. In fact, the sale of rabbit feed and supplies is now becoming a major part of the business.

Mr. Willecke has three delivery routes, similar to those of a rural mail carrier, though he uses only two trucks. He stocks orders by telephone and from applications received by the route men on the previous visit to the farms. Also some extra feed is placed on the trucks, in case someone wants more than he ordered or a new customer is picked up.

PERSONAL SERVICE—R. R. Willecke, co-owner and manager of the Farmers Feed & Seed Co., Pocatello, Idaho, shown here handling chicken feed, attributes the growth of his feed trade to personal service to customers, a farm delivery route and handling of a wide variety of merchandise. Mr. Willecke has been in the feed business for nearly 20 years and has built his trade to about $250,000 a year.

"This is a normal practice in this area," he said. "Most of the larger stores have delivery routes, so we had to put one on in self defense. However, it can be a profit-maker if handled right. We have shortened our routes as much as possible by travelling where most of the farms are.

Route Men Are Trained

"I also have some good men on the trucks. They are energetic and likeable and they know everyone. They have been specially trained in feeds and livestock. If they come to a farm where a farmer has a sick animal, they can usually give some sound advice and emergency treatment until a veterinarian gets there. This type of service seems to be appreciated by farmers."

Besides the regular crops of hay, grain and potatoes, this has also become a sugar beet farming area. Mr. Willecke wasted no time in getting his share of it. Now he buys large quantities of the beet pulp, then grinds and mixes it in dairy cow feed.

The firm also does seed cleaning. Every year he buys several thousand pounds of seed which is cleaned and

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BOVEXTRA mixed with feed makes this quick change-over possible...cuts 3 to 4 weeks off marketing time. BOVEXTRA also permits uniform marketing since slower cattle fatten faster.

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Add BOVEXTRA to your special formula or mix with commercial feed to improve the rumen function and aid digestion. Where mixing facilities are not available BOVEXTRA may be sold to spread on top of feed or added to agitated drinking water. Watch BOVEXTRA produce results . . . cattle put on top grade finish in less time bringing higher market prices for the feeder.

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3. Back our dealers to the hilt

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200 Grain Exchange
Minneapolis, Minnesota

re-sacked at the store, then sold to growers in different sections of the state.

For many years the store dealt mostly in feeds, but when farm chemicals came to the area, Mr. Willecke saw an opportunity in handling them. However, this was a field almost alien to him, so he made a special effort to learn all about them. By reading widely and working closely with company experts, he soon became familiar with the various types of insects and the insecticides needed to combat them.

Also Mr. Willecke said he saw a need to change over from the old-type feed store to a modern store with island displays and separate departments. This was brought about because of competition from department stores and other places, which began handling farm chemicals, animal health remedies and pet supplies. By entering this field and adopting their own methods, the Farmers Feed & Seed Co. was able to add thousands of dollars to the annual sales gross.

Building up a profitable business didn't happen without overcoming a few problems. Learning how to handle credit was one of them. Some of the farming units are quite small, which means the owners never have much operating capital. This is good business, but can ruin a feed dealer if he lets credit get out of hand.

Knows His Customers

"We don't have any special method of keeping it down," says Mr. Willecke. "We do try to know our customers and learn how he is conducting his business. If he is a poor farmer who never plans ahead, he is a bad credit risk. We try to collect all debts, and one way is to just keep hammering away at them in a friendly but persistent manner. Occasionally we can suggest changes in operation that will help the farmer and enable him to pay his debts.

"Good bookkeeping helps out on this. By keeping a record on every customer, his type of farming, record for payment and his credit rating with other merchants, we know when to say yes and when to shake our heads."

Mr. Willecke says no store owner can stay in business unless he knows at all times just where his business stands. This means good records and close bookkeeping.

"Running a business is more difficult than ever before," he says. "The margin of profit has shrunk, taxes and labor costs are higher. This means watching the little things and the hidden costs. A fellow who manages his place haphazardly had just as well close up shop, because some energetic competitor will soon put him out of business."

McKesson Promotes John E. Zacharias

NEW YORK—The appointment of John E. Zacharias as a vice president of McKesson & Robbins, Inc., has been announced by George Van Gorder, chairman. Mr. Zacharias, executive assistant to F. Dean Hildebrandt, vice president in charge of the company's chemical department, directs purchasing and supplier arrangements.

Before coming to McKesson in 1952, Mr. Zacharias was associated in an executive capacity with chemical manufacturing companies in Detroit and New Haven, and with the United States Trust Co. of New York.

Vincent T. Staraci, administrative assistant to F. Dean Hildebrandt, vice president in charge of the chemical department of McKesson & Robbins, Inc., has been appointed an assistant vice president.

Mr. Staraci has been with the McKesson organization since 1947 serving as operations manager in the company's Texas chemical district, Northeast district and New York home office. He is a graduate of Fordham University school of business administration.

Amburgo Makes Plans For 20th Anniversary

PHILADELPHIA—The regular semi-annual sales meeting of the Amburgo Co., Philadelphia, was held at "Golden Acres," company farm at New Britain, Bucks County, Pa.

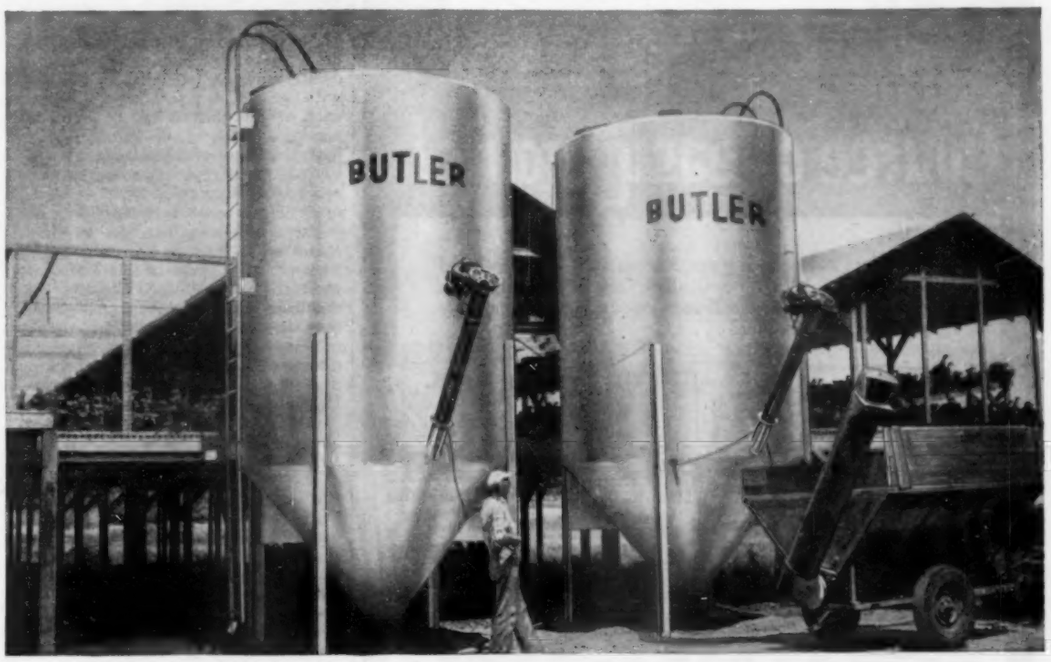
Plans were formulated to celebrate the company's 20th anniversary. Subjects discussed were a campaign of product merchandising and a special brochure which is now in preparation. Samuel M. Golden, president, presided over the sessions which were attended by all company personnel.

The meeting, held over a two-day period, was highlighted by talks of well known animal nutritionists. Dr. G. Lynn Romoser, assistant professor of animal nutrition, University of Maryland, gave as his topic "Present Trends of Poultry Nutrition."

James O'Leary, general manager, biochemical sales division, Commercial Solvents Corp., spoke on the "CSC Program," while Lou Kovacs, Vitamins, Inc., discussed "Rumen Micro-Organisms."

ELEVATOR MAN DIES

DENVER — Iver Rasmuson, a grain elevator operator in Minnesota during most of his life and Office of Price Administration staff member at Denver during World War II, died here at the age of 80.



Two 20-ton Butler Bulk-O-Matic Feed Tanks at the K. W. Johnson Turkey Ranch, Owatonna, Minnesota.

Get and hold **Big Volume** feeders and growers with **Butler** on-the-farm bulk feed tanks

Lower feed prices, easier handling, mixed-to-order feeds at little or no extra cost—these are some of the advantages of bulk feed handling you can offer to get profitable business from big volume feeders. And, by seeing that customers are equipped with Butler Bulk Feed Tanks, you'll actually save on delivery and storage costs, even though you handle more feed!

All-steel Butler tanks on the bulk feeder's farm save time and labor by permitting fast mechanical loading and unloading. They let you use the farm instead of your warehouse for storage . . . and eliminate the need for frequent, if not daily, deliveries. Feed production and shipments can be planned ahead with greater certainty to further cut your costs.

To insure years of profitable *repeat business* from big-volume feeders and growers, alert dealers and feed manufacturers are participating with their customers on the installation of Butler Bulk Feed Tanks. It's an investment in extra storage capacity that pays off in customer loyalty and extra sales.

Let a Butler representative show you how a bulk feed program has worked for others—and how it can work for you. Butler's complete program includes bolted grain tanks from 1,297 to 60,763 bushels for storage of feed and ingredients at the mill; welded tanks from 8 to 44 tons for large feeders and dealers; and galvanized tanks from 3 to 6 tons for on-the-farm use. For full details, write to the Butler office nearest you.

BUTLER galvanized steel Bulk Feed Tanks for on-the-farm use are available in sizes from 3 to 6 tons.

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BUTLER MANUFACTURING COMPANY

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NUTRITIONAL DEFICIENCY IS MURDER

Safeguard Your Feeds with CCC Trace Mineral Premixes

Calcium Carbonate Co.

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Box 409, Carthage, Mo.
325 W.O.W. Bldg., Omaha, Neb.

Source of easy profits!

Here's why . . . Because your customers know they need Morton T-M Salt. In practically every farm publication they read in 1956 they will see eye-catching, memorable sales messages like these . . .

Morton Trace-Mineralized Salt
for more milk, husky calf crop
Morton Trace-Mineralized Salt
for healthier hogs, healthier profits
Morton Trace-Mineralized Salt
for healthier cattle, healthier profits
Morton Trace-Mineralized Salt
for more wool, big lamb crop!

Thus, when anyone comes into your place of business, all you have to do is say:—"Do you need Morton Trace-Mineralized Salt today?" Chances are they will need some. Can you think of any easier way to sell and make a more consistent profit?

What do we do for you? The Morton Salt Company backs the name "Morton" and a fine product with the most powerful advertising ever!

In 1956, in practically every issue of the best-read farm publications in your trading area—State Farm Papers; Regional Publications (Capper's, Successful, Progressive, Southern Planter); Special Livestock Magazines (Breeders Gazette, Western Livestock Journal, Hoard's Dairyman)—you will find advertisements urging your customers to buy Morton T-M Salt. That means they are presold on Morton T-M Salt . . . ready to buy at the drop of a hint.

Stock up on Morton Trace-Mineralized Salt. Be ready to meet the demand of your customers. When a man wants salt for his livestock, he wants Morton T-M Salt.

★ Your customers want it ★ Their livestock need it
★ Your feeds will do a better job ★ You'll make more profit

Sell it by the bag—or block

Morton TRACE MINERALIZED **Salt**

MORTON SALT COMPANY • CHICAGO 3, ILLINOIS

FEED INDUSTRY OPPORTUNITIES

(Continued from page 45)

growth factors, other additives yet to be recognized.

(10). New significance to old minerals and new essential minerals will be recognized. With accelerated gains and boosted production from today's livestock and poultry, and with further depletion in croplands, more minerals will become critical. Of immediate interest, zinc additions appear to be in the picture. Parakeratosis, elephant hide in pigs, is related to zinc shortages. Previously puzzling feed lot troubles will be identified as feed deficiencies or unbalances.

(11). New requirements will be defined. More efficient feed conversion demands greater concentration of certain nutrients within each pound of feed. Under other conditions certain requirements may be lowered. According to some laboratories, protein needs of pigs are lowered when antibiotics are included.

There are many indications pointing to even more efficient feeds. Preliminary experiments with trout indicate amazing efficiency is possible, with nearly a pound of gain from each pound and one-half of feed consumed.

But economics must not be overlooked; profit remaining for the feeder is more important than a record of excellent feed conversion alone.

(12). Nutrient balance is more complicated and more important. Energy and protein requirements need to be considered closely. The additions of calcium and phosphorus may demand a closer check on trace mineral requirements. Excessive additions of salt may require checking of potassium levels. Other interrelationships are equally important.

(13). Quality control is necessary. Improvement in quality control should be speeded up, as it is moved closer from the laboratory to mixing line, it will become more thorough. Dated feeds stressing freshness may gain some consideration; radioactive tracers may be used to help check the thoroughness of mixing feed. Larger staffs with trained specialists will be needed.

(14). Properly fortified roughage offers excellent profits to the feeder and real opportunity for service to the feedman. Pasture produced at a cost of 39¢ per hundred is more profitable for a farmer to feed than oats which costs $1.44 per hundred to produce on the same farm, or a 16% dairy feed priced to sell but not formulated for profit.

(15). Ruminant feeds are critically needed on the farm. The feed industry has sold some dairy feeds. But many have been busy supplying the dairyman with feeds he thinks he needs rather than really feeding his cows. Most dairymen are still feeding horse and buggy formulas in jet age competition. This is one reason that greater progress in animal health and feeding efficiency has been realized with hens and hogs than with cattle.

Veterinarians in Wisconsin last year made over 50% of their calls on dairy farms for non-infectious troubles—mild fever, ketosis, shy breeding, retained afterbirth, weak calves, hardware disease, bloat, etc. Good feeds and good feeding would certainly go far to prevent much of this loss.

Likewise today's dairyman, battling cost increases and surpluses, might well profit from increased returns and lower costs with high producers. Prof. James Crowley, University of Wisconsin, recently summarized three average production groups and showed the old but little known story that—

Better Cows and Better Feeding Bring Higher Returns

Average Production	No. cows to return $4,000 income over feed cost.	Milk Produced
5,000 lb.	100	500,000 lb.
7,000 lb.	43	301,000 lb.
9,000 lb.	30	270,000 lb.

The first group is near the national average; the second group is near the average in Wisconsin; the third group represents the approximate average of Wisconsin Dairy Herd Improvement Assn. herds.

The yearly labor income for one dairy farmer, according to U.S. Department of Agriculture figures, can vary from $2,959 with usual practices, to $5,733 with improved practices. Better equipment, efficient management, lower cost, efficient feeds and more roughage could solve many of the dairy farmer's woes. Education and better feeds are needed. Progress is real in the beef field today, but the potential is tremendous.

Better feeds that are on the horizon will do much to help the dairyman and the beef man. We need to sell more dairy and beef feeds, more concentrates and supplements, more creep feeds in the years ahead. If we do we'll help feeders to overcome the real profit robbers. High feed cost, breeding, health troubles and high labor cost can all be reduced.

(16). On-the-farm service needed. Better feeds and better breeding and better management hold real profit power. Well fed hens but laying poorly on one Wisconsin farm increased in production from 35% to 70% in two weeks by installing a ventilating fan. An alert feed man saw the need for air as well as good feed. Beef cattle stopped gaining but a check found an electric heating unit in a water tank shocking cattle. For 14 days cattle ate, but failed to gain. When the trouble was corrected average gain for the next 14 days was 4 lb. Feed alone can't do the job.

(17). Pipe lines to our experiment stations run two ways. Your experiment station and others deserve real credit for not only research but the application of research as well. Our role in industry is to apply new facts coming from the colleges. But also, because of its close contact with feeders, the industry can suggest profitable paths of further progress in experiment station laboratories.

Feed industry leaders in all phases will do well to provide nutrition and feed service staffs with added technical help to allow continued formulation advances, expanded testing and control, and complete cooperation with other departments. Nutritionists likewise should cooperate with other departments and work to qualify for top management positions where nutrition knowledge can be of tremendous value. Tomorrow's nutritionist won't be a "know it all," but rather one who knows "where to go," "how to work with" purchasing, production, sales, advertising, and "how to get" advice, weigh the facts and move ahead as part of a team with en-

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TOASTED WHEAT FLAKES

Ample Supplies—Carlots, Trucklots, LCL
WRITE, WIRE, OR TELEPHONE COLLECT

LAUHOFF GRAIN CO.
Cereals of Quality Since 1862
DANVILLE, ILLINOIS

TELEPHONE 1800
TELETYPE 8261

thusiasm, foresight, optimism and purpose.

Through service as an industry, working with colleges, we have served with purpose and gained stature and strength. The feed industry has become one of the "big ten" American manufacturing industries and a leader of all agricultural industry. This size and strength has meant opportunity, it means further opportunity, but it also means greater responsibility.

1. We must supply feeds that meet the farmer's needs, to help solve his problems. Today's feeder needs to save cash, save labor, reduce breakdowns and losses and make maximum use of farm feeds. Our feeds need to meet these needs. Quality should never be sacrificed for expediency or short term gains.

The stakes are now great. Our industry started with a few early facts and men with foresight to build the young giant of today. Yet, it's the mere beginning. Young ideas are needed but so is mature judgment. We cannot afford hasty, desperation maneuvers that might sell a few bags of feed today but hurt bigger sales tomorrow. Before recommending new findings, before adopting new findings, experiment stations and feed people will do well to make sure that:

(a). Changes do not demand radical over-night changes in feeders' habits.

(b). Changes do not offer feeds that put more labor onto the farmer's busy shoulders.

(c). Changes do not advertise magic cure-all ingredients.

(d). Changes do not lower the demand for meat, milk, and eggs.

2. We must serve with high standards and real purpose. We not only have to know, but we have to be people of standards ourselves. Nine times out of ten the strong win the battle, the swiftest win the race.

(a). What we tell our dealers and our feeders must be effective and true. If not you've lost their confidence.

(b). We must be stable and consistent. Man's confidence and enthusiasm are shattered if he knows that there will be new instructions next week without explanations.

(c). Honesty inspires confidence. If you've made a mistake, admit it, and correct it.

(d). Keep promises, otherwise, statements become just conversation.

3. Recognize that legitimate profit is essential. No business can serve long without profit.

4. We must recognize that people are the most important part of our science and industry, or of any science or any business. People we help to feed and people who produce the food are our real customers.

Progress will be made by men who also understand the importance of people. If we will grow as people, our science and industry will grow.

As individuals within a firm or on a staff grow—then the firm and the staff grow. There is big opportunity for men trained in nutrition and who will grow with our changing times. There is a big opportunity for feed salesmen, feed dealers, and their employees who will grow with our changing times.

Summary

The science of nutrition and our feed industry have purpose. We help to catalyze the conversion of feed to food for people. We started with only a few facts and with foresight. Today we have both mature judgment and new ideas.

Opportunity is unlimited. Progress will be made by those who understand our purpose and the importance of people. If we are to be leaders, we must also be the servant. As has been said, "He who would be the chief will have to be the servant to all."

Our unlimited opportunity is overshadowed only by our responsibility to serve agriculture to the best of our ability and resources.

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WORM POWDER
WORM LIQUID

SUPPLIED IN BULK FOR YOUR PRIVATE LABEL

THE PIPERAZINE CORP.
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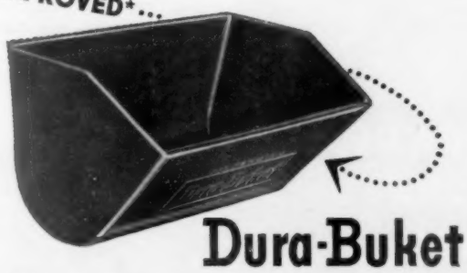

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lasts longer . . . saves money!

*Special Plastic by Fiberite Corp.

Proved and IMPROVED: Yes, four years of continued research and testing under actual severe conditions, have proved that the revolutionary improved Dura-Buket outwears, outlasts ordinary elevator buckets many, many times. Dura-Buket is better than ever because it's made of a special strong and shock resistant plastic developed by the *Fiberite Corporation*. Order your supply today.

And Dura-Bucket gives you these important trouble and money-saving extras:

1. Special shock-resistant plastic by Fiberite.
2. Strong and shatter-proof.
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...by poultrymen
for pigmentation

♦Diamond® Corn Gluten Meal is a favorite of long standing with men who know poultry feeds and feeding. High in pigmentation and vitamin A potency.

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CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York 4, N. Y.

UP OR DOWN?

By Leonard W. Schruben
Agricultural Economist, Kansas State College

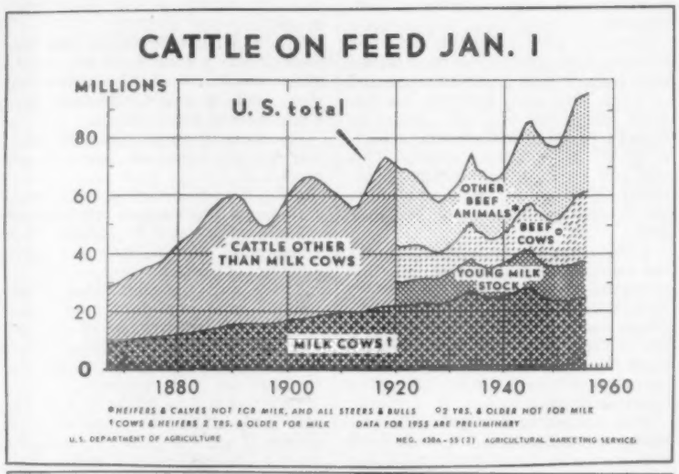
Livestock Production Cycles

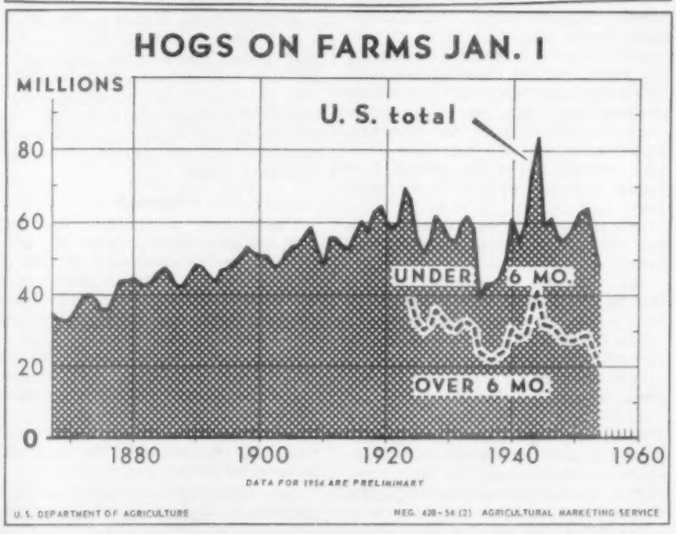
One of the best ways to appraise the potential market for manufactured feed is to become familiar with livestock production cycles. The purpose of this article is to explain some of the things to look for in anticipating a changing livestock population.

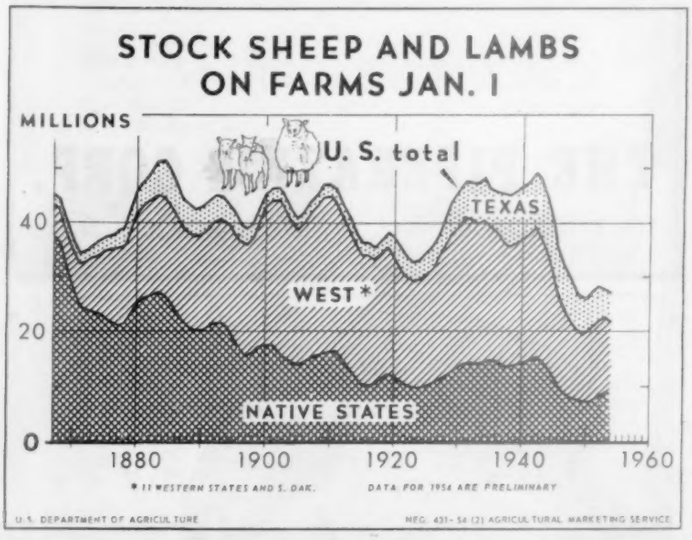
The production of livestock changes from one year to the next. These changes tend to follow rather definite up and down patterns in response to changing economic conditions. They tend to repeat over a period of years, and this is why they are called cycles.

The cycle is different for each species. Hog production cycles usually run four to six years. Beef cattle cycles generally run 10 to 14 years. Laying hens complete the cycle in about two to three years. The cycle in lamb production is less definite but tends to be about nine years in length. There is little evidence of a cycle in dairy cattle numbers and no indication of a cycle in horse and mule numbers.

Cycles in production represent the response of producers to profits and losses in production. There is usually a lag between the time profits for an enterprise appear and the time farmers begin to expand production and a still further lag before the increased production reaches the market. When the increased production reaches the market, prices of the product tend to decline and profits decrease. Also, increased numbers of livestock cause increases in the demand for feed, and feed prices tend to rise, further decreasing profits.







Stage Set Again

As profits disappear, producers tend to liquidate holdings of livestock which further depresses prices. The liquidation process may go on for some time before the reduction in production shows up in market supplies and prices begin to rise. When this point is reached, the stage is again set for expanding production, and the cycle begins to repeat itself. Unusual factors such as drouth, general business depressions, wars and inflation may help shape the cycles as to length or extent of fluctuation, but the cycles tend to be self-perpetuating.

Certain price relationships are frequently used to indicate the relative profitableness of livestock enterprises. Thus, the hog-corn price ratio expresses the relationship of hog prices to corn prices. It is calculated

It Pays to Feature Feeds Containing
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Here's Why...

PROFITS... DEHY's natural components come far cheaper than synthetic substitutes. You produce better feeds at lower cost—make higher profits!

DEMAND... Your customers want DEHY's natural vitamins, minerals, protein and Unidentified Growth Factors in their feed programs!

• 14 vitamins! • 11 minerals! • 10 amino acids supplied by DEHY's high quality protein!

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A·D·A··Produced Dehydrated Alfalfa provides nutrients necessary in every good livestock feed including vitamins A, E and K, Xanthophyll and the B-complex group which are also a must in poultry feeds!
USE A·D·A··PRODUCED DEHY in All Your Feed Mixtures!

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● GIVES GREATER PULL FOR THE MONEY
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FOR FEED TABLE AND SPOUT INSTALLATIONS

You get more for your money with W-W Permanent Magnetic Separators. There's 30% more pull through the Alnico V unit than any other comparable magnet. W-W's "Fair Price" Policy assures true value whether you are a machinery manufacturer, dealer, contractor or user. The W-W Magnet has a protective casing to prevent breaking and to keep out dirt. Available hinged or plain in a wide range of sizes.

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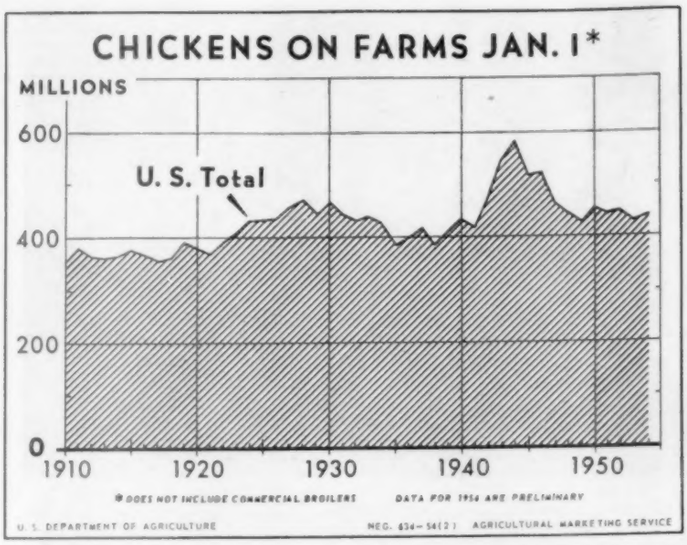

by examining the accompanying exhibits which were prepared by the U.S. Department of Agriculture. They show trends in numbers of cattle, hogs, chickens and sheep.

You can see by examining these charts how numbers of livestock go up and down. You will note the steady increase in the number of cattle which is the long-time upward trend even though it is broken by these cycles. Sheep and lamb numbers have been decreasing. It appears as though hog numbers are almost to the bottom of the current cycle. Chickens on farms Jan. 1, 1957, are expected to be somewhat higher than last year.

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Feed us the copy for your next tags and then sit back and stop worrying—you'll get accurate proofs, prompt delivery—a quality feed tag you'll be proud to display. Plan for your future requirements—Call-Write us now—

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by dividing the price of hogs per cwt. by the price of corn per bushel. If hog prices are high compared to corn prices, hog production is considered to be profitable. The hog-corn price ratio can be used as a basis for predicting increases or decreases in hog production six months to a year in advance. The same indicator can be used to predict the rate of marketing hogs from 9 to 18 months in advance.

In a similar manner, the milk-feed price ratio, the egg-feed price ratio, and the poultry-feed price ratio are useful devices. In the case of beef cattle, the cycle seems to be more closly related to the relative purchasing power of cattle compared to all commodities. If cattle prices are high, in relation to the general price level, cattle numbers tend to increase.

Lengths Vary

Cycle length for any particular kind of livestock is related to the time required for reproduction and growing to marketing age. Thus chicken numbers can be expanded in a very short time, hog numbers in a couple years, but cattle numbers require quite a long period of time to expand.

You can get a good idea as to the present position of livestock numbers

GIVE YOUR DOCTOR A CHANCE

400,000 Americans, leading active lives today, are living proof of the fact that cancer can be cured if detected in time. Give your doctor a chance to give you this protection by having a physical checkup every year of your life. This should include a chest x-ray for men; for women, a pelvic examination. Make it a habit . . . for *life*.

AMERICAN CANCER SOCIETY

Feeds are more palatable

when you use Armour Meat Proteins

It's only natural to expect that animals will eat more of the feeds that they like.

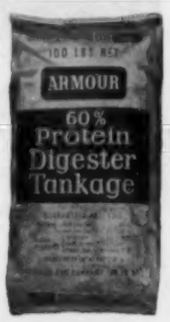
And Armour Meat Proteins make feeds taste better because they contain at least 8% natural fat for greater palatability.

Natural fat helps animals make more efficient use of your feeds, promoting both growth and quality in stock. Important, too, fat in feeds increases the stability of vitamin A, and helps control dustiness.

You're bound to build better feeds when you use Armour Meat Proteins. Besides providing essential proteins and fat, these ingredients are rich in minerals in readily available nontoxic form—and they contain vitamins, Riboflavin and B-12 in natural form.

Use Armour Digester Tankage in all your hog feeds, Armour Meat and Bone Scrap in all your poultry and cattle feeds, and Armour Standard Steamed Bone Meal to supply additional calcium and phosphorus when needed.

These Armour feed ingredients get results that build loyal patronage for your brand of feeds!



ARMOUR AND COMPANY
TALLOW & FEED DEPARTMENT
General Offices: Chicago 9, Illinois

ONTARIO SALES CONFERENCE—Sixty representatives of member firms attended the sales training course sponsored by the Ontario Retail Feed Dealers Assn. at Toronto. "Students" are shown in the picture here. Methods of approaching the customer and making sales presentations were stressed. Conducting the conference was Ralph Everett, sales training leader from Buffalo. A banquet held in conjunction with the sales course was followed by a talk on advertising and public relations by Don Henshaw, MacLaren Advertising Agency. Mr. Henshaw said that advertising and promotional campaigns are to no avail if public relations at the customer contact level are neglected. The conference was the first of its type ever staged by the association, according to Murray H. McPhail, secretary, who reports that it was highly successful.

Camera Views of the News

SALES CONFERENCE—Objectives and procedures for the sale of its specialty feeds were outlined at a two-day sales conference held by Ryde & Co. at Chicago. Attending the meeting, from left to right, were: L. C. Risberg, general manager; Joe Dosch; Jay Vander Kolk; F. M. Hooper; Ray McGugin; J. M. Hartigan, traffic manager; R. M. Ryde, president; Lee O. Salmon; Lloyd Plewes; Clarence Voelker; Rudy Boecker and William Hinkson.

NEW FORMULA—Officials of the Albers Milling Co. met at Los Angeles recently to announce a new formula, called the Lab-Mix concentrate for feed manufacturers. Present at the formulation conference were, from the left: Russell Lindstrom, company nutritionist; G. A. Ensminger, assistant vice president; and Fred Harshberger, sales supervisor for the new formula program. The latter is from Kansas City.

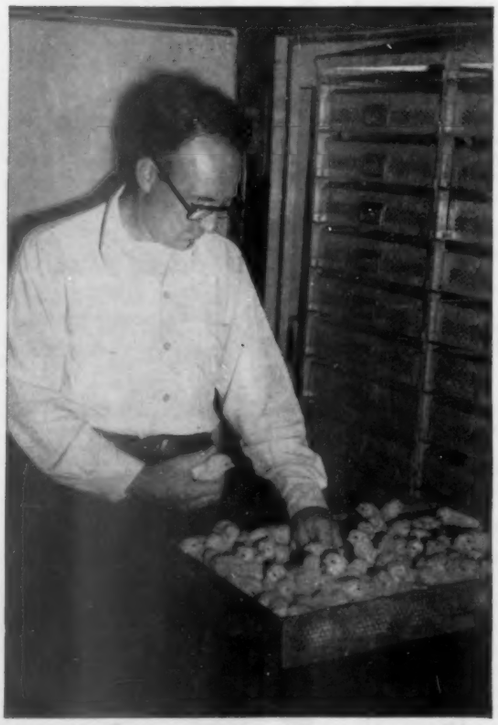
HONORED — Dale W. McMillen (right) of the Central Soya Co., Ft. Wayne, Ind., presents a golden performance "Oscar" to S. E. Nelson at a recent company gathering. The award was given in recognition of Mr. Nelson's work in several phases of the company's operations over the past 14 years. He is manager of special meal sales.

AT OKLAHOMA CONFERENCE—Shown in the first picture are four of the many out-of-state industry men on hand for the recent Oklahoma Formula Feed Conference at Oklahoma State College. Registering for the event are, left to right, Rex Lawman, Central Bag Co., Fort Smith, Ark.; Tracy Barrett, feed ingredient broker, Springdale, Ark.; Dean Staufacher, Diamond V Mills, Inc., Cedar Rapids, Iowa, and Ward Graham, Vita-Vex division, Douglas Chemical Co., Kansas City. In the second picture are three key figures at the conference. Dr. W. M. Beeson (left), Purdue University, Lafayette, Ind., discusses highlights of the program with Tom McGee, Jr., Superior Feed Mills, Oklahoma City, president of the Oklahoma Feed Manufacturers Assn., and Dr. Rollin Thayer, Oklahoma A&M College, program chairman.

Henry Tilford, son and father, co-managers of Dixie Grain Company, inspect one of their new bulk-delivery trucks. Modern labor-saving equipment has contributed to progress marked by this Mid-south feed mill.

Mid-south feed mill records further progress on 50TH anniversary

Increases Feed Efficiency 8%... Cuts Marketing Time 4 Days



Henry Tilford, shown with part of a new hatch of broiler chicks. Dixie Grain places over 200,000 broilers a week from this hatchery.

The Dixie Grain Company, Shelbyville, Tenn., keeping pace with their progress over 50 years, reformulated their broiler feeds in the fall of 1955. The new broiler rations were formulated according to the Du Pont Methionine-energy concept. The rations have a higher energy content balanced with the proper amount of added Methionine.

This new balanced ration was fed to broilers in four growing centers of the Mid-south. Chicks at each of these centers are uniform—all are supplied from the Dixie Grain Company's hatchery—200,000 are placed each week of the year. Production records are complete—growing operations are by contract, under supervision of the Company's service men.

Comparing the records for May of this year against May of 1955 for each of the four growing centers, Dixie Grain Company found that the 1956 records show 8% better feed efficiency and that broilers reached market weight in four days' less time.

Make sure your broiler feeds are designed to take full advantage of their energy potential. For the lowest possible cost per pound of meat, be sure your feed contains enough Methionine.

E. I. DU PONT DE NEMOURS & CO. (INC.)
Grasselli Chemicals Department
Wilmington 98, Delaware

Du Pont Company of Canada Limited, 85 Eglinton Avenue East, Toronto

Methionine

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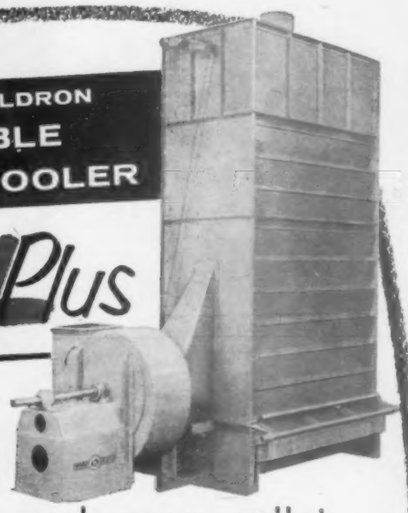
MOVABLE
LOUVER COOLER
WITH THE Big Plus



thoroughly cools every pellet
even on short runs...

Another pelleting problem solved by Sprout-Waldron! Now you can cool and dry pellets as thoroughly on short runs as is possible on production runs with the Sprout-Waldron Movable Louver Cooler.

The louvers are hinged so that as the pellets rise in the cooler, each louver opens and stays open automatically and independent of the others. This enables the cooling, drying air to be forced through the pellets from the moment they start dropping into the cooler. And the bottom layers of pellets are cooled for the entire length of time it takes to fill the column. When discharged, the first bag of pellets will be just as cool as any bag during the middle and end of the run.

The hinged louver panels of this cooler are available for installation into existing fixed louver Sprout-Waldron coolers.

Here's equipment that can save you time and trouble. And Sprout-Waldron's BIG PLUS in engineering guidance, fine workmanship, service, and reliability assures top results.

Write for Bulletin 166

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FE/469

Feeding Value of Feather Meal And Other Keratin Proteins

By Dr. O. H. M. Wilder
American Meat Institute Foundation

EDITOR'S NOTE: Research work on the use in feeds of feather meal and hair and hoof protein is reviewed in the accompanying article by Dr. O. H. M. Wilder of the American Meat Institute Foundation, Chicago. A considerable amount of processed feather protein is now used in feeds, he points out, but further work will be needed on the development of processing methods for hair, hoof and horn proteins. This article is the abstract of a talk by Dr. Wilder at the Arkansas Formula Feed Conference.

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The keratin proteins of feathers, hair and hoof represent a large potential source of protein for feed use. In 1955, there were 1,078,000,000 broilers produced in this country, from which about 94,320 tons of feathers were taken. In addition, there were about 68,000,000 turkeys raised for slaughter which would add about 24,000 tons of feathers. During the same time, there were 81,058,000 hogs slaughtered under federal inspection, which contributed over 54,000 tons of hair to the keratin protein supply.

Keratin proteins, in their natural state, are considered to be quite indigestible by animals and birds. However, recent advances in the technology of processing have resulted in keratin protein materials which are digestible and assimilable by animals and birds.

Keratin proteins contain a relatively high percentage of the amino acids glycine, cystine, arginine and phenylalanine which are particularly important in poultry nutrition. They contain low percentages of lysine and methionine, so they cannot be used as the sole source of protein. When keratin proteins are used, they must be properly balanced with other materials that will supply adequate amounts of the amino acids deficient in the keratin proteins. They must also be properly processed to make the keratin protein digestible. Suitable methods have been developed for converting the protein in feathers to a digestible form and a considerable amount of processed feather protein is used in feeds today.

The average amino acid composition of feather meal is shown in Table 1. The arginine, cystine, phenylalanine and isoleucine content is higher, while lysine, tryptophan and methionine are lower than in other common feedstuff proteins. Since arginine and cystine are particularly important in poultry nutrition, feather meal may be very useful in balancing the amino acid content of chick rations. The high isoleucine content also will be useful to balance the protein of blood meal since that protein is particularly deficient in isoleucine.

Feeding Tests

A series of chick feeding tests was started in 1952, to find out if processed feather meals could be used in feeds. A basal corn-soybean oil meal type of diet was formulated, containing a total of 20.5% protein. Feather meals, meat and bone meals and blood meals were used as protein supplements replacing an equal amount of soybean oil meal protein. Table 2 shows average chick weights at eight weeks and feed conversions on some of these diets (each diet contained corn and alfalfa meal which supplied protein in addition to that shown). The results indicate a definite trend toward improved growth and feed conversion when feather meal was used as a part of the protein supplement.

Similar results have been obtained at the University of Maryland (3), the University of Georgia (4), Clemson Agricultural College (5), the U.S. Department of Agriculture at Beltsville (6) and the University of Maine (7).

Other types of keratin proteins appear to be more resistant to processing and as a result are generally less digestible than processed feather protein. Reports from several laboratories in 1952 and 1944 indicated that finely ground hoof and horn protein had some value in chick feeding, but results appeared to be inconsistent. A more recent report from the Ontario Agricultural College (8) indicated that the hoof and horn proteins that they used had little if any value in a chick diet and that they were not utilized for growth nor did they improve feed efficiency. Processed hair has been used in the laboratories of the Amer-

Table 1—Amino Acid Composition of Feather Meal

	% of Sample	% of Protein
Arginine	5.62	6.41
Glumatic acid	8.04	9.19
Histidine	0.40	0.46
Lysine	1.55	1.76
Leucine	7.43	8.48
Isoleucine	3.79	4.33
Methionine	0.51	0.58
Cystine	3.09	3.55
Phenylalanine	3.77	4.31
Threonine	3.96	4.51
Tryptophan	0.57	0.66
Tyrosine	2.43	2.75
Valine	6.53	7.45
Protein (N x 6.25)	87.6	

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THE BORDEN COMPANY

Earl J. Brubaker

Earl J. Brubaker, Gen. Mgr.,
Soy and Feed Supplements Dept.

EJB:js

Table 2—Effect of Feather Meal on Chick Growth

Group No.	Protein supplied by—Soybean oil meal %	Meat and bone meal %	Blood meal %	Feather meal %	8-Wk. weight lb.	Feed conv. Feed/Gain
1	14.4				2.61	2.57
2	12.0				2.46	2.50
3	9.6				2.36	2.55
4	12.0			2.4	2.57	2.41
5	9.6		2.4		2.49	2.46
6	9.6		2.4	2.4	2.58	2.49
7	12.0	2.4			2.52	2.41
8	9.6	4.8			2.65	2.45
9	9.6	2.4		2.4	2.69	2.40

ican Meat Institute Foundation, but inconsistent results have been obtained on that protein also.

Since hair, hoof and horn proteins contain more arginine and cystine than does feather protein, work will continue to find processing methods that will make them suitable for use in feeds.

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Cattleman Emphasizes Importance of Research

SAN FRANCISCO—John H. Guthrie, "California's Livestock Man of the Year," has predicted a prosperous future for cattle raisers and the related feed industry in California, but he warns that thorough research is a necessity for continued expansion.

Mr. Guthrie, a Porterville cattle rancher who pioneered the use of greenchop alfalfa in commercial beef feeding, said California's cattle production has grown to be one of the largest industries in the state.

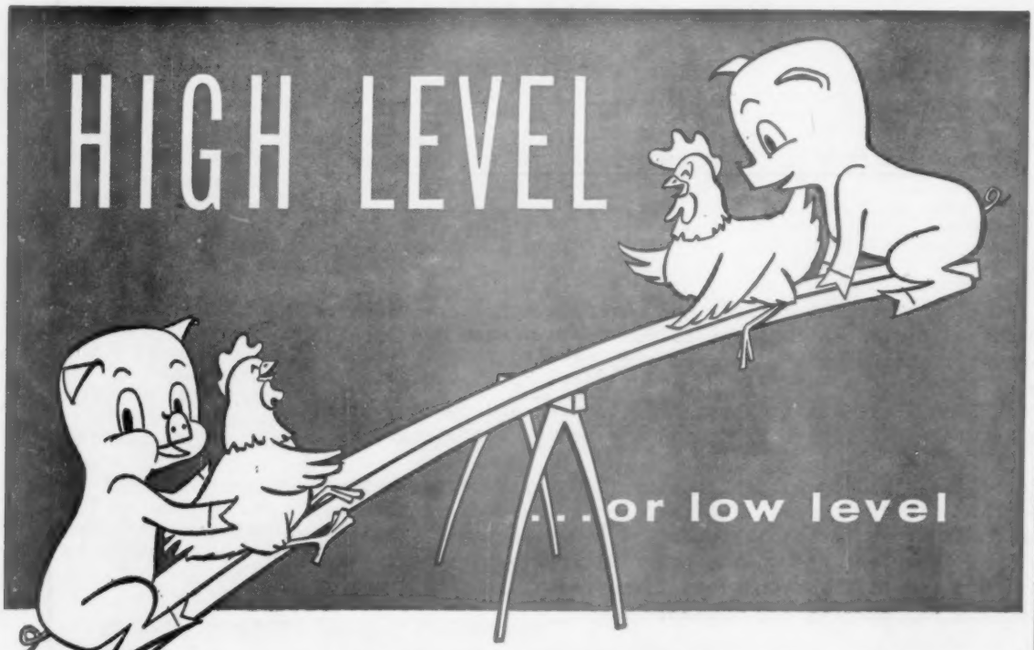
He said, however, that "today the cattle industry needs research more than anything else. In the early 1930's we got along fine on a 7¢ lb. price on cattle, whereas today it costs us 20¢ lb. to produce our cattle. To meet these rising costs, to do a more thorough merchandising job, and to expand our markets, we need an effective research program.

"We have made some good strides in the last three years in this matter of research, but we still have a long way to go to equal the production and marketing research done, for example, in the poultry producing industry."

Mr. Guthrie was speaking at a luncheon in his honor sponsored by the San Francisco Chamber of Commerce at the Fairmont Hotel. He received a silver tray and was officially recognized as "Livestock Man of the Year" at the Grand National Livestock Exposition in the Cow Palace Nov. 2-11.

Henry P. Wilder

APPOINTED — Henry P. Wilder of Dallas Center, Iowa, has been named regional sales manager of the Ray Ewing Co., Pasadena, Cal., by Jack Plonsky, executive vice president. Mr. Wilder will represent the organization in Iowa, Nebraska, Kansas and Missouri. He was a graduate of Iowa State College's animal industry husbandry division in 1940, and has been active in the farm management field for 12 years. During the past four years he has served as representative for mineral and vitamin fortification producers. A Ewing mixing plant is located at Council Bluffs, Iowa.



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MICHIGAN EXPANSION — The dairy, poultry and animal husbandry departments at Michigan State University, East Lansing, have moved into the newly completed animal industries building, Anthony Hall. In the foreground is the meats laboratory while the low topped building at the extreme right is the dairy manufacturing center. The dairy department is located in the section to the left of the manufacturing center and the long building at the left is shared by the poultry and animal husbandry departments. In the center of the picture is the flat-topped 600-seat auditorium. The view is toward the northeast and shows the rear of the building.

Michigan State Puts Animal Industries Building into Use

EAST LANSING, MICH. — Anthony Hall, Michigan State University's new animal industries building, has been completed and is now in use.

The three animal industries departments—animal husbandry, dairy and poultry—now occupy the $4 million building. Begun in 1954 after initial appropriation by the Michigan legislature, the structure is named for Ernest L. Anthony, emeritus dean of agriculture at MSU.

Departments will make use of the building's facilities and equipment in teaching, research and extension programs. All have increased space and added equipment to use in helping Michigan's animal industries, which have an annual income of $386 million.

The building has four units: A section to house the dairy department staff offices, classrooms and laboratories; a dairy manufacturing center connected to the dairy section; a section devoted to classrooms, laboratories and staff offices for the poultry and animal husbandry departments; and a 600-seat auditorium. A meats laboratory is also part of the new structure but is not connected to the building itself. Future construction may extend from the main building to the meats laboratory.

Dr. R. H. Nelson, Dr. N. P. Ralston and Dr. H. C. Zindel, heads of the animal husbandry, dairy and poultry departments, respectively, point out that their research programs will be given a big boost by the added facilities and equipment.

More efficient use of staff members will be possible as each can spend more time on individual research projects while helping to train graduate students, university officials state. Also, increases in graduate student enrollment will provide personnel to assist staff members to explore new areas of research as well as examine present projects in more detail. Enrollment has already begun to rise and for fall term, 1956, the animal husbandry department had 21 graduate students, the dairy department had 26, and the poultry department had 24.

Undergraduate students will benefit also, officials say. The equipment in the laboratories is similar to that now being installed in commercial operations. The enlarged facilities will also allow instructors to use new techniques in teaching and students will have more chances to get laboratory experience. All classrooms and laboratories in the building are equipped for closed circuit television.

Dr. O. D. Butler Heads Texas Department

COLLEGE STATION, TEXAS— Dr. O. D. Butler has been named head of the coordinated animal husbandry department for the Texas A&M College System, according to Dr. J. C. Miller, dean of the School of Agriculture.

Dr. Butler succeeds Dr. Miller as head of the department since Dr. Miller resigned to become dean.

Formerly, Dr. Butler was in charge of the meats laboratory of the animal husbandry department, where he taught and conducted research into various aspects of meat production, marketing and consumption.

His research, particularly in the field of cut-out percentages from livestock of various conformations, is known all over the livestock world.

Dr. Butler was born at Orange, Texas, on Sept. 29, 1918. He received his B.S. in agriculture from Texas A&M in 1939, and his master's degree in animal husbandry in February of 1947. He received his Ph.D. for meat research at Michigan State University in 1953.

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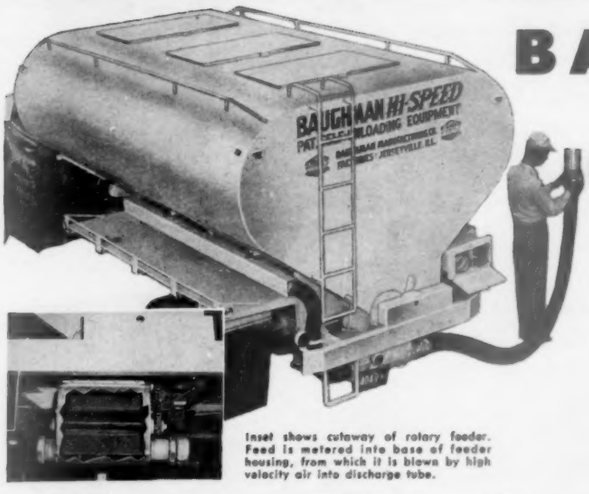

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N. M. Dealer Says

New Equipment, Specialization Build Business

By Jess F. Blair

After adding several pieces of new equipment, the Farmer's Market & Supply Co., Las Cruces, N.M., was able to get the franchise of a national feed company's products and is now showing a large increase in business.

The store is now making several kinds of feed and sells both to customers and to several retail stores in the area. The manager, Mose Silverman, says he decided the way to get more business was to become equipped to handle it. So he installed a small, modern mill automatically operated and capable of turning out 500 tons of feed per week. The store also has seed cleaners, pelleting machines and other equipment.

When Mr. Silverman knew he could handle the increased volume, he made an effort to secure the franchise from the national company. Besides furnishing other dealers with feed, he decided to specialize in the poultry supply business, with dairy feeds to be second in importance.

He says there was a good reason for this, because the falling water table in the Rio Grande River Valley was causing farmers to search for crops that would require less water than cotton. Poultry was one of them, and Mr. Silverman saw the opportunity in helping promote laying hens and broilers.

The firm now has a field representative, Bill Daniels, who spends all his time calling on customers, taking orders and visiting poultry farms and dairies in the area. He has been trained by schooling and experience to work out feed rations, diagnose diseases and offer expert advice on feeding and management problems.

The store personnel is in close touch with New Mexico A&M College, and relies on it for poultry production guidance. When a customer loses a hen to some apparently unknown disease, Mr. Silverman sends the dead bird to the college for an analysis.

"This close relationship with the college helps us in many ways," said Mr. Silverman. "The professors know poultry, and from them we have also picked up considerable knowledge. Since we are both working to help the poultry owners, it works out very nicely."

The store sells the college all its feed and mixes it according to the institution's specifications. During the last two or three years, the college has conducted feeding and laying tests by using maize in the rations, with good results. Mr. Silverman keeps up with all results and helps pass them on to producers.

"Maybe not every store owner is located near an agricultural college," he said, "but he can work with his county agent and other professional men in his area."

Carries Allied Lines

The Farmer's Market & Supply Co. handles everything the poultryman needs, including wire, feeders, waterers and medicaments, but this isn't enough, says Mr. Silverman.

"He is in a business that is changing fast, and he also needs advice and help. This is where the services of a good, sound outside man will really pay off.

"Another way to be of service to the customers is to make deliveries. This pays off, too, because it gives us a chance to visit regularly with the poultry and dairy owners and learn what is going on."

While the dairy business is secondary to poultry, it is increasing steadily, especially since the store is

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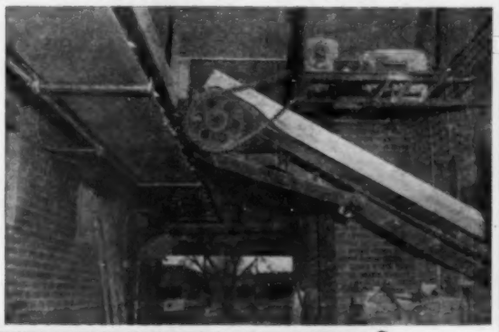

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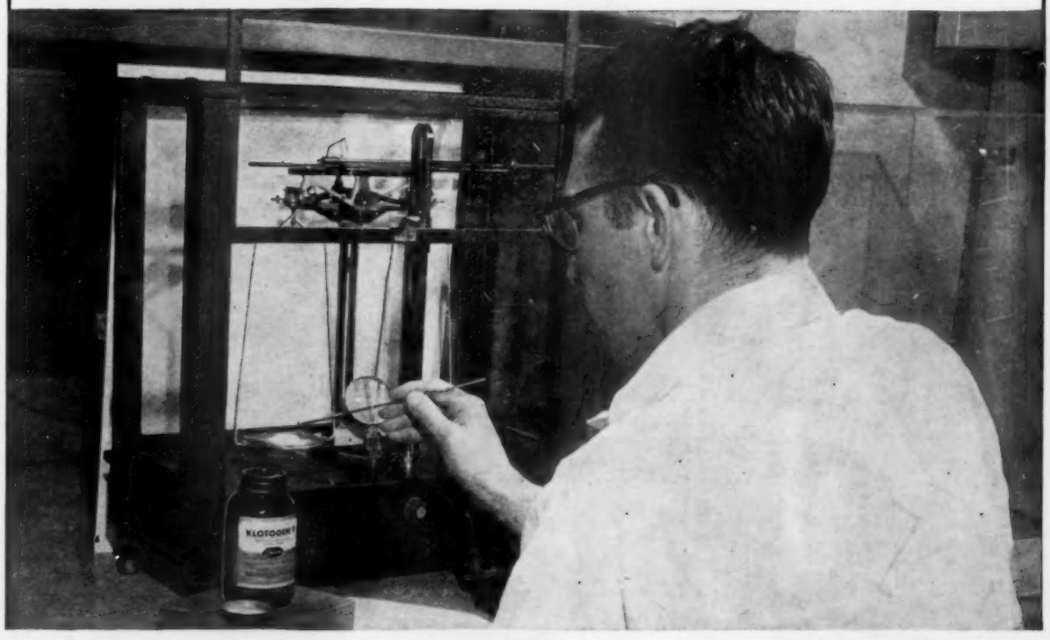

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Widespread use of new, high-energy poultry rations means poultry get less natural vitamin K. Moreover, poultry diseases often cut down the flow of liver bile, necessary to absorption of natural K or fat-soluble menadione.

But KLOTOGEN F is *water soluble*—eliminating the vitamin K absorption problem in the intestinal tracts of poultry. Laboratory tests have shown KLOTOGEN F to be three to 10 times as effective as plain menadione in poultry feeds, depending on the type of ration. Thus, KLOTOGEN F provides poultry with the best possible protection against vitamin K deficiency, even in times of stress such as over-medication, enteritis, debeaking and dubbing.

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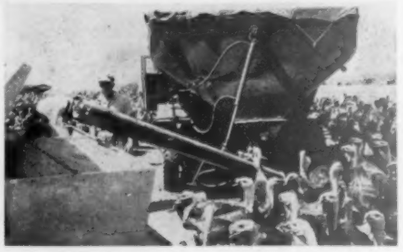

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now able to mix bulk feed according to the owner's requirements.

Mr. Silverman says that farmers like a one-stop service nowadays. Being pressed for time and finding parking facilities downtown crowded, they don't want to make a half dozen stops for just a few items. He now handles practically every type of item found in a large farm store. This includes seed, garden tools, lawn mowers, light farming equipment, hardware, insecticides, fertilizer and dozens of other products.

"One thing I've learned in my five years as manager here," he said, "is to look closely into the profit margin of every item handled. We sell small sacks of fertilizer and have a good insecticide business. In this, however, we cater a lot to town trade because of so many backyard gardens."

Animal and poultry remedies have become a major sideline. Having an outside man who is familiar with nearly all the known diseases has greatly increased sales in these lines. Quite often they follow the sale of feed, but occasionally a new customer is added because the outside man has helped someone with his ailing birds or animals.

Before coming to the store where he is now president and general manager, Mr. Silverman had spent a long tenure in store management. Though it was different from the feed business, he says the principles of management are almost the same no matter what kind of merchandise a man sells.

Advertising is worked out carefully where it will do the most good and follows the popular mediums of radio and newspaper. He says advertising can be underdone or a man can go overboard with it. The firm's name needs to kept before the public, but he should first have something to sell and some service to be rendered.

Despite a business volume that employs more than a dozen workers, Mr. Silverman seldom buys in large volume. He says an area feed dealer never has to wait over 24 hours for feed deliveries, and the retail customers don't have to wait at all.

"Buying in too large a volume doesn't pay off," he said, in conclusion. "Merchandise gets stale and out-of-date too quickly. In some products, what we're selling today may be outmoded by next year, because something newer and more effective may be on the market. Therefore we seldom keep more than a 30 days' supply of anything on hand.

"Another reason is that we don't keep so much cash tied up in a storeroom full of merchandise. We can do more cash business with wholesalers and pass these savings on to our customers in fresher products and more personal services."

Eastern Poultrymen To Gather Nov. 28

LAUREL, DEL.—Maryland, Delaware and Virginia poultrymen will meet here Nov. 28 for a regional poultry meeting. The one-day program will be sponsored by the extension services of Maryland and Delaware and poultry organizations of both states.

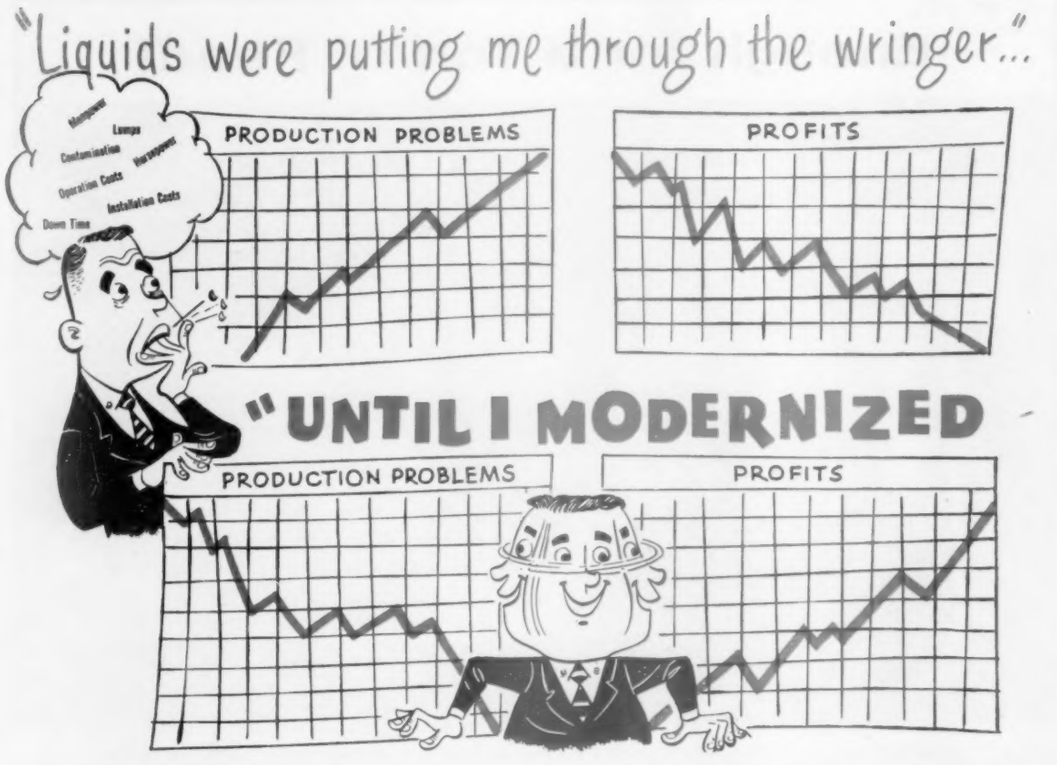
On the program at 9 a.m. will be a color movie, "Acronized Poultry—A New Method for Processing Poultry." At 9:30 there will be a panel, "Trends in Marketing Delmarva Broilers." Frank Gordy, Georgetown, Del., executive secretary of the Delmarva Poultry Industry, Inc., will moderate. Dr. R. C. Smith, economist at the University of Delaware, will speak on "How Much Does Quality Affect the Farm Prices of Broilers?" "New Ways to Sell More Chicken" will be the topic of Robert Breedlove, Birdseye Co., Pocomoke City, Md. A. Bliznick, American Cyanamid Co., Pearl River, N.Y., will talk on "How to Keep Dressed Poultry Fresh Longer."

Another panel, "How to Feed and Manage the Breeding Flock for More Profit" will get underway at 10:30 a.m. with Ralph Obier, Laurel, as moderator. Charles Vantress, Duluth, Ga., is slated to discuss "Our Program for Breeder Management."

At 11:30 a.m. Dr. M. S. Cover of the University of Delaware will discuss the possibilities of preventing chronic respiratory disease in broilers.

First speaker on the afternoon program will be Dr. Tevis Goldhaft, Vineland (N.J.) Poultry Laboratories, Vineland, N.J. William Haffert, Jr., Garden State Publishing Co., Sea Isle City, N.J. will talk on "Squab Broilers—Will They Make More Money for Delmarva Poultrymen?" He will also speak on "Integration in the Market Egg Business—How Contract Production Is Affecting the Industry—What Position Will the Smaller Independent Egg Producer Be In?"

Silas McHenry of the University of Delaware will be moderator for the topic "How to Grow Broilers Cheaper" at 2 p.m.



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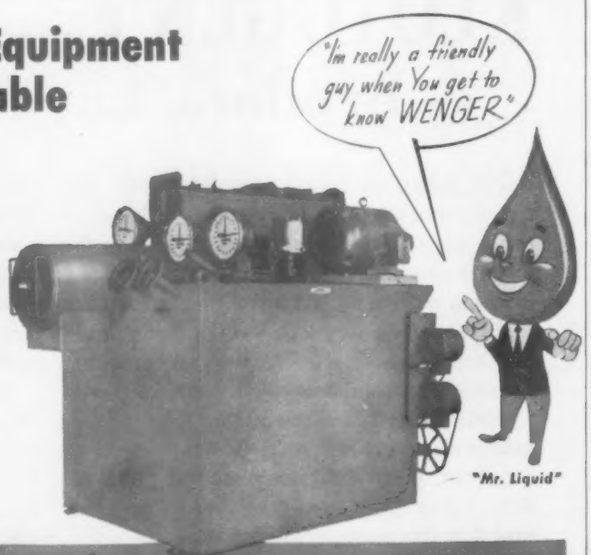

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Goal Set at 20 Scholarships For Feed Technology Students

MANHATTAN, KANSAS—A goal of 20 scholarships for students in the feed technology program at Kansas State College was set at a meeting of the Feed Tech Advisory Committee with college officials here Nov. 4-5. This is seven more than the existing 13 scholarships. Interested firms and industry groups throughout the country will be asked to contribute to this enlarged scholarship program.

The meeting was called by chairman C. Grattan Lindsey, Jr., of the Lindsey-Robinson & Co., Roanoke, Va., and was attended by 19 feed industry committee members and alternates and 15 from the college staff.

College officials reported an enrollment of 69 students in the feed tech courses, of which 20 are freshmen who entered this fall. This is an increase over the previous year. President James McCain said the feed tech courses have made an excellent showing, exceeding in student numbers 25 longer established courses of study offered at Kansas State. Industry and college officials expressed optimism about reaching a goal of 100 freshmen next year.

President McCain explained the procedures of establishing college budgets and pointed out that the college had appropriated $45,000 to the feed tech building and now had an annual operating budget of $53,580 for the department of milling industry.

Considerable discussion took place on the problems involved in conducting research with the feed tech facilities. Dr. John Shellenberger, head of the department, said there was insufficient laboratory equipment and staff available at present for work of this kind. He said some money had been appropriated by the college to provide laboratory equipment in the near future. Financing from industry would be needed for any major research program, he added.

Dr. A. D. Weber, dean of agriculture, said he would appoint a committee from the college staff to work with the feed industry in planning a program for future research.

In this connection, the research subcommittee of the industry advisory group recommended an expanded subcommittee which would screen industry research proposals and work with the committee to be appointed by Dean Weber. The subcommittee also suggested an investigation of several established college-industry research coordinating groups.

The technical subcommittee reported the results of an inspection of the feed tech mill and found only a few minor inadequacies which are being corrected. Plans for a stepped up publicity program were proposed by the publicity committee to achieve the goal of increased enrollment, scholarships and industry support.

Austin Brooks of the El Rancho Milling Co., Clovis, N.M., was elected a member of the advisory committee to fill a vacancy.

Feed industry representatives who attended the meeting as committee members or alternates were: Mr. Lindsey; B. D. Eddie, Superior Feed Mills, Inc., Oklahoma City, Okla.; Lloyd Larson, Midwest Feed Manufacturers Assn., Kansas City; Richard Kathe, American Feed Manufacturers Assn., Chicago; Charles Barr, Ames (Iowa) Reliable Products Co.; Dr. J. E. Hunter, Allied Mills, Inc., Libertyville, Ill.; David McVey, General Mills, Inc., Minneapolis; Ray Ammon, Vitality Mills, Chicago; Burr Ross, Gooch Milling Co., Salina, Kansas; John Heimovics, J. B. Ehrsam Co., Enterprise, Kansas; George Thomas, Prater Pulverizer Co., Chicago; D. K. English, Ralston Purina Co., St. Louis; Maurice Johnson, Staley Milling Co., Kansas City; Oscar Straube, Pay Way Feed Mills, Inc., Kansas City; Martin E. Newell, Feedstuffs, Kansas City; John Bratten, Albers Milling Co., Kansas City; Chase Wilson, Dannen Mills, Inc., St. Joseph, Mo.

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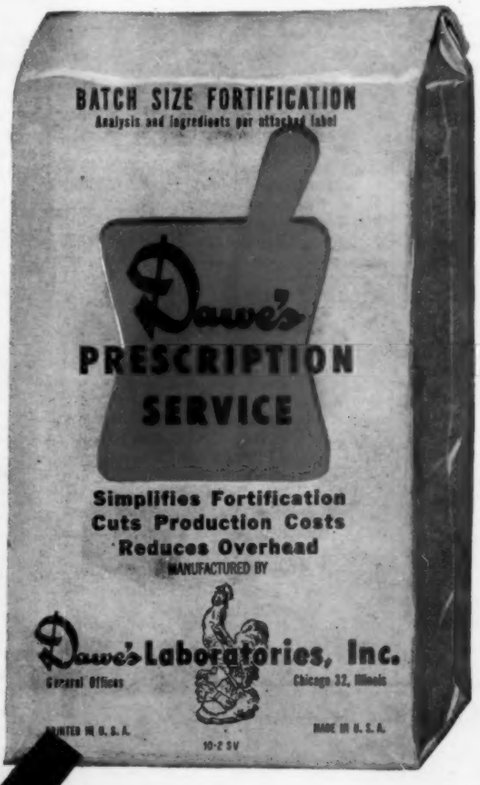

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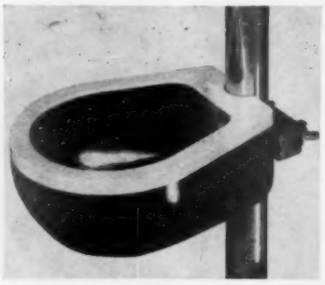
No. 5587—Salt Feeding Bowl

New features have been incorporated into the loose salt feeding bowl made by the Morton Salt Co. The bowl can be mounted on either a stanchion or wall and is blue with yellow trim. It is easy to keep clean and is made for years of satisfactory service, the manufacturer states. The salt bowl was developed after several years of experimentation and field testing to find a material and design that would be chip-proof, nonrusting and have the strength necessary to withstand rough usage, it is explained. The material adopted was Permelite. All fittings on the bowl are of rust-proof bronze and stainless steel. To secure more complete details check No. 5587 on the coupon and mail it to Feedstuffs.

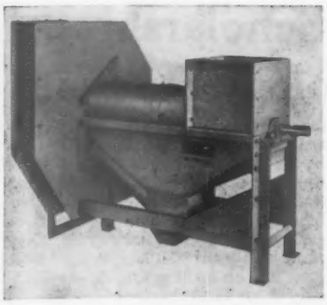


No. 5586—Dairy Washing Powder

Pennsalt MC-3 is the trade name of Pennsylvania Salt Manufacturing Company's soapless dairy washing powder designed especially for use in hard water areas. Company officials state: "Through the addition of both nonionic and anionic wetting agents, MC-3 now has greater penetration powers and longer lasting suds for thorough and rapid cleaning action. In addition the product is now completely dust free for easier handling." The product is available in water resistant 5-lb. cans, packed 12 to the case, and in 25-, 125-, and 350-lb. full-opening type drums. For more complete details check No. 5586 on the coupon and mail it to this publication.

No. 5590—Corn Sheller

The Triumph No. 500 Zip is the name given to the new heavy duty sheller introduced by the Triumph Division of the C. O. Bartlett & Snow Co. Although the shellers are of medium shelling capacity, they are claimed to be heavy and ruggedly built to withstand all requirements of continuous use in grain elevator service. The sheller weighs about 1,300 lb. It shells corn from cobs and husks, air cleans the shelled corn, blows the cobs, husks, silk and chaff up to 40 ft. vertically and 50 ft. horizontally to an inside or outside



cob bin or outside storage pile. It can handle 18-22 tons of machine picked ear corn per hour (i.e. approximately 500 to 600 bu. of shelled corn per hour) and is approximately 4 ft., 9 in. high, 6 ft. long and 4 ft., 5 in. wide. To secure more complete details check No. 5590 on the coupon and mail it to Feedstuffs.

No. 5585—Electric Distributor Head

Details of the Select-A-Flo, trade name for the electrical, directional storage distributor manufactured by the K. W. Rodemich Co., Inc., are announced. The units can be installed to receive material from elevator legs, collectors, mixers, sifters, belt conveyors, screw conveyors, pneumatic systems or any other process

that needs the facilities of distribution for any free-flowing materials such as grains, meals and chemicals. The unit consists of two parts, namely the indexing spout and the selector switch control board. Features claimed are: Custom built design, variation in opening discharge, remote control and reversing action. To secure more complete details check No. 5585 on the coupon and mail it to this publication.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 5521—Bulk feed body, Simonsen Manufacturing Co.

No. 5522 — Flavor ingredient for phenothiazine-treated salt, International Salt Co.

No. 5523—Poultry water and feed product designed to aid growth and protect against disease, American Cyanamid Co.

No. 5524 — Feed, seed and grain handling equipment, King & Hamilton Co.

No. 5525—Feed bin design, Sprout, Waldron & Co., Inc.

No. 5526—Feed body for bulk and sacked feeds, Simonsen Manufacturing Co.

No. 5527—Vacuum cleaner for industrial use, Burrows Equipment Co.

No. 5528—"Free-running" salt process, Morton Salt Co.

No. 5529—Cleaners and scalpers for soybeans, S. Howes Co., Inc.

No. 5530—Booklet describing Christie's Spizzerinktum New Hampshires, Granite Whites and White New Hampshires.

No. 5531—Farm and dairy cleanser, Pennsylvania Salt Manufacturing Co.

No. 5532—Portable formula feed blender, Barnard & Leas Manufacturing Co., Inc.

No. 5533—Antibiotic, vitamin and mineral product for swine feed or drinking water, American Cyanamid Co.

No. 5534—Poultry and livestock disease treatment with nitrofuran drugs, Hess & Clark, Inc.

No. 5535—Brochure on bolted steel tanks, Columbian Steel Tank Co.

No. 5536—Valve bag packer using fluidizing principle of conveying material, Black Products Co.

No. 5537—Rodent control unit, Solvit Chemical Co.

No. 5538—Public storage plan for warehousing alfalfa pellets under inert gas pressure, Grain Elevator Warehouse Co.

No. 5539—Stream splitter for dividing single stream of dry, free-flowing material, Sprout, Waldron & Co., Inc.

No. 5540—Booklet on high-level antibiotic feeding, Commercial Solvents Corp.

No. 5541 — Phenothiazine wormer for cattle and sheep, VyLactos Laboratories, Inc.

No. 5542 — "Pallet bag" for "squared-off" appearance, St. Regis Paper Co.

No. 5543—Poultry feed additive, Heterochemical Corp.

No. 5544 — Dauber lid for screw worm smear containers, Dr. L. D. LeGear Medicine Co.

No. 5545—Dairy cattle feeding program, Pillsbury Mills, Inc.

No. 5546—Bulk delivery of molasses feed, Baughman Manufacturing Co.

No. 5547—Vitamin D product for treatment of milk fever in dairy cattle, Silmo Chemical Corp.

No. 5548—Grain shovel devices, Foster & Felter Co.

No. 5549—Counter display for self-service of nf-180 tablets, Hess & Clark, Inc.

No. 5550 — Bulk feed tank with 2½-5 ton capacities, Martin Steel Products Co.

No. 5551—Dog food, Vitality Mills, Inc.

No. 5552—Water tube boilers, Nebraska Boiler Co., Inc.

No. 5553—One-man push button loading of boxcars and trucks, R. T. Sheehan Co.

No. 5554—Liquid compounded fat for alfalfa dehydration and feed mixing, Swift & Co.

No. 5555—Feed fortification product, New England By-Products Corp.

No. 5556—Pneumatic feed mover, Dunbar Kapple, Inc.

No. 5557—Booklet on vaccination of poultry, Dr. Salsbury's Laboratories.

No. 5558—Hammer Mill, Myers-Sherman Co.

No. 5559—Feed supplement for swine, cattle and sheep, American Cyanamid Co.

No. 5560—Display bag frame for showing empty feed bags on counters, windows, Bag Display Co.

No. 5561—Attrition mill, Strong-Scott Manufacturing Co.

No. 5562—Swine salt with extra zinc, Hardy Salt Co.

No. 5563—Water soluble antibiotic products, Amburgo Co.

No. 5564—Calf manual and guide to raising young animals, Blatchford Calf Meal Co.

No. 5565—Fats in feeds, National Renderers Assn.

No. 5566—Pre-fabricated cage layer house with automatic ventilation, Permco Manufacturing Co.

No. 5567—Size reduction pulverizer, Strong-Scott Mfg. Co.

No. 5568—Niacin applications in animal nutrition, Tar Products Division, Koppers Company, Inc.

No. 5569—Leaflet on egg quality with space for imprinting company name, quantity prices quoted, Tobias Enterprises.

No. 5570—Folder on stabilized animal fats in feed rations, National Renderers Assn.

No. 5571—Complete package feed mill unit, Jacobson Machine Works.

No. 5572—Flow diagram for the

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No. 5577—256-page book on dog care, available at nominal charge, published by Bantam Books, Inc., and written by Harry Miller, director, Gaines Dog Research Center.

No. 5579—Capsules, a stabilized form of the vitamin K analog, Abbott Laboratories.

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No. 5581—Leaflet on health-giving properties of eggs, quantity prices quoted, Poultry & Egg National Board.

Way Cleared for Cut In Railroad Rates For Drouth Areas

WASHINGTON—Ezra Taft Benson, secretary of agriculture, has authorized governors of seven drouth states to designate persons entitled to reduced rates from western and southwestern railroads for shipment of hay and livestock.

The purpose of the action is to enable farmers and stockmen to obtain maximum benefits from the reduced rates which the railroads have voluntarily given in recognition of the serious drouth situation.

Under Western Trunk Lines Freight Tariff 436-C, designated persons can receive a 50% reduction in rates on hay shipped by the carload from all western states to the drouth disaster areas.

Southwestern Lines Freight Tariff 295-D provides free return transportation to originating points for livestock shipped from the drouth areas to feeding grounds in western territory. Under this delegation of authority governors in Colorado, Kansas, Nevada, New Mexico, Oklahoma, Utah and Texas are authorized to designate classes of persons entitled to the reduced rates and to redelegate to state agents or agencies the authority to execute such certificates.

Heretofore Farmers Home Administration county supervisors were authorized to execute railroad certificates for stockmen determined eligible for assistance under the Federal-State Cooperative Agreement.

Drackett Co. Shows Record Net Profit

CINCINNATI—The Drackett Co. reports sales of $24,682,000 for the fiscal year ended Sept. 30, and net profit before taxes of $1,713,000, largest in the company's 46-year operations. Net income after taxes was $848,500, equal to 96¢ per share of common stock, second largest ever reported. In the previous fiscal year, sales were $19,454,000 and net earnings were $785,285, equal to 93¢ a common share.

Roger Drackett, president, said that working capital at the end of the last fiscal year was $4,438,000, after retirement of 18,000 shares of 6% $25-par cumulative preferred stock.

Directors declared dividends of 12½¢ a share on common stock, and regular quarterly dividends of 25¢ on the 4% cumulative convertible preferred stock, series A, and 37½¢ a share on the 6% cumulative preferred stock, series B, all payable Nov. 15 to holders of record Nov. 9.

Dividends to date this calendar year on the common stock total 45¢ a share, compared with 40¢ a share paid in 1955.

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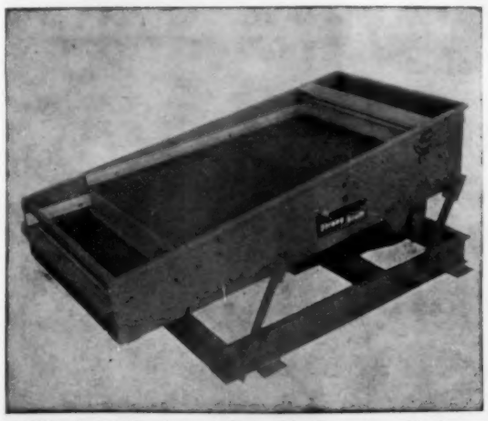

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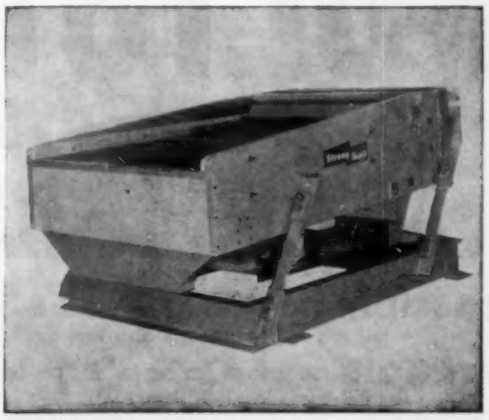

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Quality Control in Feed Manufacturing

By Maxwell L. Cooley

EDITOR'S NOTE: Advice on quality control procedures and facilities for both small and large feed mills is included in the accompanying article by Maxwell L. Cooley of the animal nutrition division of Hoffman-Taff, Inc., Springfield, Mo. Mr. Cooley deals with various aspects of assuring quality of both ingredients and finished feeds, and he devotes considerable attention to the handling of drugs and other micro-ingredients. This article is from talks by Mr. Cooley at the Arkansas Formula Feed Conference and the Texas Nutrition Conference.

During this extremely competitive period in the feed industry it behooves the feed manufacturer, whether large or small, to frequently examine his program. He must make a careful analysis of the areas which he serves. His manufacturing facilities should be expanded and revamped to meet the demands for modern type feed formulations and for various pelleted and crumblized feeds. Technical information on ingredient specifications, formulation, mixing problems, etc., must be available as well as trained personnel to utilize this information. Furthermore, a quality control program should be followed to assure the feed buyer that he is purchasing uniform, first-class merchandise.

The feed mixer is primarily rendering a service to the feeder. Basically he merely compounds ingredients according to an acceptable, nutritionally sound feed formula. This service view-point has been an important consideration during the past 10 years in placing greater emphasis on the establishment and growth of local smaller mills as against the large terminal mills. Because of the expanded bulk handling of feeds and because the smaller mill is much more versatile than a large mill, plus the fact that a local operator is more familiar with needs and demands of feeders in his area, the service-minded and efficient local mill is in an excellent position. Intimate customer service is an important advantage the small mill has over the large central mill.

Of course, economies in freight rates favor the local mill.

Maxwell L. Cooley

We must not neglect to consider some of the advantages a terminal mill has over the local mill. Especially on tonnage items, because of the volume processed, the cost of manufacture per ton of feed is generally less in a large mill. Moreover, such a mill can afford to maintain a staff of technical people and particularly one or more specialized nutritionists. In many cases an adequate research farm is also part of such a program. The large feed manufacturer usually provides more extensive quality control by including a well-staffed and well-equipped chemical laboratory.

Laboratories

Laboratories perform a desirable, and in many cases, an essential, quality control function in any complicated manufacturing process. This is true of the production of feed. Such a facility is an extremely important means of preventing the acceptance of sub-standard feed ingredients which often can be detected only by chemical analyses or by application of feed microscopy.

Before proceeding, I would like to briefly discuss feed microscopy, which is the use of a microscope or other means of magnification in the examination of feed and feed ingredients. Quoting from an article I wrote for the July, 1955, issue of Feed Age: "A practical application of feed microscopy is that of ascertaining the adulterants and contaminants in feed ingredients and feeds. There appear

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With Polystat in your feed you perform a real service to growers. You give them more of what they need to raise better birds at higher profits. Polystat helps *you* too. It reduces flock service required, simplifies your feed additive program, cuts costs and stimulates repeat sales from *more* satisfied customers.

We urge you to "take a new look at Polystat." Write today for Feed Manufacturers Guide No. 7-A for the authoritative data that will prove to your satisfaction that poultry feeds containing Polystat are *worth more* because they *do more* . . . for you *and* your customers.

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to be considerable value and advantage in introducing microscopy into a feed quality control program for rapid and effective examination of samples of incoming ingredients and of finished feeds. This method, if properly used, should be able to define quality aspects, especially as it pertains to adulterants. In many cases it can be used in conjunction with examination for general appearance, odor, color, texture, and chemical assays. It has been reported that certain types of fish meal have been adulterated with cottonseed meal. Meat and bone scraps have sometimes been found to contain excessive vegetable fiber particles (from intestinal contents) which would indicate laxness in processing and undesirable quality. These characteristics of ingredients and contaminants can be ascertained with a microscope."

Before I leave the subject of feed microscopy, I want to point out that the application of this technique to examination of unknown samples of manufactured feeds is increasing. An expert feed microscopist is able to literally "take the feed apart" and in many cases, especially if a mash feed is involved, may do an excellent job of estimating the formula by which the feed was made. In conjunction with this type of work, laboratory analysis of the sample in question is of great assistance to the microscopist.

Returning to the chemical laboratory in a feed quality control program, besides furnishing information on incoming ingredients, just as important are assays on the finished feeds. Chemical analyses for at least the factors guaranteed on the feed tag are good assurance that the products are meeting specifications. The lack of sufficient numbers of drug assays on medicated feeds is an undesirable situation because overages of these potent medicants may be costly as well as detrimental. On the other hand, too little of these important materials reduces the performance of the feed for the purpose intended. This same principle applies to the many other small-percentage items going into a feed.

Cost of Control Program

We all realize that although laboratory control is excellent, the small feed mill is unable to afford the establishment and maintenance of such facilities. In these competitive times, the question certainly arises as to how much a feed manufacturer can logically and economically spend on a quality control program. Purely as my own opinion, I feel generally that between 20 and 25¢ per ton of feed for this expense is reasonable. Such an expenditure should cover sampling, examination, laboratory maintenance, personnel, and other such costs. If these figures are acceptable, it would appear that any given feed mill or feed company having a total annual production of less than 40,000 to 50,000 tons may not be able to afford much, if any, company-owned laboratory facilities. This, of course, does not mean that the services of a reputable commercial laboratory should not be used as occasions arise.

If a chemical laboratory is not available, more concentrated effort must be placed on the other aspects of feed quality control. The experienced feed operator can obtain a great deal of information on the quality and uniformity of ingredients and finished feeds by examination of representative samples for color, odor, texture, and general appearance. Purchase of ingredients from reputable suppliers also is important. Careful handling and disposal of dust collections and mixer cleanouts will help prevent undesirable effects on the finished feed. This especially applies to materials containing drugs which could inadvertently be mixed into unmedicated feeds and thereby be detrimental. The maintenance of correct inventory and usage records will show whether the amounts of each ingredient as specified by the feed formula have been used in a given batch or run.

Calculating Nutrients

The formulas for each feed should be developed, and the nutrients calculated so there are sufficient overages to protect the guarantees as well as to prevent nutritional deficiencies.

This requires using reliable analysis tables to calculate the various nutrients in the formula. Depending on what is desired as to detailed and comprehensive calculation data and what type of feed is involved, the number of nutrients may include

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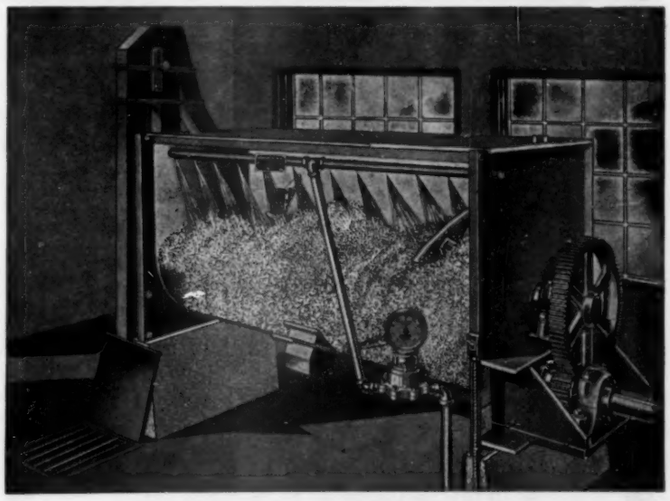
MIX WITH A *Marion* MIXER!

MIXES BOTH DRY AND MOLASSES FEED

Marion Molasses Equipment, easily installed with your Marion Mixer, is of the simplest, most efficient design for thoroughly impregnating dry materials requiring any percentage of molasses. Outstanding design features of the Marion Molasses equipment are: The spray manifold that runs the entire length of the mixing cylinder for complete saturation, the rugged "gear within a gear" rotary pump that handles liquids of the highest viscosity, and the molasses meter that registers exactly the amount required for the formula—(NO MORE . . . NO LESS!) then keeps a cumulative record for you, if desired, of pounds of molasses or oil used by the day, week, month or year.



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Proved to be one of the highest efficiency mixers in the industry, through the most exhaustive laboratory tests, the Marion Mixer is still one of the lowest priced mixers on the market today. The exclusive Marion Mixing and Blending Action is the key to its efficiency because through its design, even the barest trace materials can be thoroughly and completely blended while simultaneously being cross-blended constantly in the mix for assured formula uniformity. Marion Mixers are designed for even the most rugged feed mixing operations and are available in various sizes suitable for any mixing requirement.

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Stop adding the unnecessary ingredient of "Doubt" to your mixing . . . day after day. Instead, start adding to your mixing profits with a Marion Mixer and Marion Molasses Equipment for a top quality mixed product that is absolutely uniformly mixed . . . batch after batch.

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A complete descriptive catalog of the Marion Mixer and accessory line.

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Charles F. Martin

Maurice J. Stack

NEW SALES MANAGERS—Charles F. Martin has been named feed products division sales manager, and Maurice J. Stack is the new national accounts sales manager for the Western Condensing Co., it has been announced by Douglass L. Mann, vice president of sales for the Appleton, Wis., firm. Mr. Martin will direct all selling activity for the Peebles' brand of poultry and livestock feeds, and Mr. Stack will be responsible for private label sales on a national basis.

many of the following: protein, fat, fiber, ash, nitrogen-free-extract, calcium, phosphorus, vitamin A, vitamin D, riboflavin, pantothenic acid, niacin, choline, vitamin B_{12}, productive energy, amino acids, and other factors.

These calculated values for the nutrient content of a feed to be made by a given formula are certainly valuable and are necessary from a theoretical standpoint. However, actual laboratory assays on samples of the finished feed produced by the formula in question furnish substantial proof as to whether the formula is being followed correctly. Furthermore, these assays indicate whether sufficient safety margins have been allowed for the nutritional requirements when the formula was originally calculated.

It is realized that many feed manufacturers do not maintain chemical laboratories while others have established more or less extensive laboratories. Complete dependence on the calculated values for certain nutrients is necessary because assay procedures have not been developed sufficiently to be practical. However, better control of the quality and uniformity of the finished feed is achieved by laboratory analyses for a number of critical factors. It is certainly desirable to at least have laboratory data covering the items listed in the guarantees on the feed tag.

Drugs in Feeds

This especially pertains to the drugs used in medicated feeds. All too few feed manufacturers have adequate records of drug assays on the feeds they have produced. Legally the manufacturer of a medicated feed is liable in various ways. His product has been registered and labeled to contain certain levels of a specific drug or drugs. The medicant has been put into the feed for a special reason and the feeder depends on each bag containing close to the correct amount of the drug in order to achieve the performance claimed by the manufacturer.

For instance, if a feed mixer incorporates a coccidiostatic drug in a medicated feed at a much lower level than is recommended the effectiveness in the control of coccidiosis is reduced. Conversely, the manufacturer could inadvertently use excessive amounts of the drug in the feed. Due to such an error the feeder might observe manifestations of toxicity such as retarded growth, unthrifty appearance of the birds and in extreme cases, mortality.

Fortunately, drug suppliers emphasize to feed manufacturers the care and precautions which must be used in the production of specific medicated feeds. Successful and satisfactory manufacture of such feeds requires a number of good milling practices such as: (1) careful control and re-use of dust collections (which may contain substantial quantities of potent drugs); (2) routine cleaning out of mixers after runs of medicated feed and intelligent disposal of these set-asides so that certain drugs will not find their way into unmedicated feeds and cause undesirable effects; (3) provide for segregated storage of the various drugs with emphasized identification to mitigate possibilities of using the wrong drug in a feed; (4) give mill operators complete information on hazards of handling the drug as well as the toxicity levels in the finished feed (this information is available from the drug supplier and defines what may happen if the drug is poorly dispersed in the feed or if the drug is inadvertently added to the feed in excessive amounts); and (5) maintenance of detailed and accurate disappearance records of drugs used

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Cancer can't strike me,
I'm hiding.

Cancer?
The American Cancer Society says that too many people die of it, NEEDLESSLY! That's why I have an annual medical checkup however well I feel. I know the seven danger signals. And when I want sound information, I get it from my Unit of the
AMERICAN CANCER SOCIETY

to make a given number of batches of medicated feed.

Actually the latter point should be especially emphasized. The development and keeping of careful inventory and usage records of all ingredients employed in manufacturing each run of feed are a very good quality as well as management control procedure.

The feed manufacturer is confronted with the problem of correctly adding and uniformly dispersing a growing number of micro-ingredients in modern feeds. These small percentage items include vitamins, antibiotics, antioxidants, trace minerals, hormones, and drugs. Obviously it is not practical to add all these materials individually to a feed. The solution to this problem seems to be in using premixes of most if not all of these micro-ingredients. Such premixes may be prepared by the individual feed mill in which case a rather large number of different items must be kept in stock. A prevalent and simpler procedure is to purchase the desired vitamin premixes from reputable producers. Such a program makes this particular quality control responsibility that of the vitamin blender and furthermore reduces the number of costly inventory items in the feed mill.

In many cases, a multi-purpose series of premixes may be developed whereby a half dozen or so premixes can be used to produce a complete line of feeds. In other words, one premix, if used in varying amounts per ton of feed, will fortify several types of feed.

If laboratory facilities are available, assays of samples of finished feed for one of the components in the premix which was used will indicate whether the premix was added correctly and whether the ingredients are uniformly dispersed in the feed. At one time there was a considerable problem as to stability of some of the vitamins in these premixes during storage. However, with the availability of stabilized types of vitamins and antioxidants it is practical to store premixes for fairly long periods without any appreciable deterioration.

Contributions Up in PENB Fund Drive

ST. CHARLES, IOWA — Four states are almost ready to join long-over-quota Indiana by going "over the top" in achieving their 1956 quotas for financing the work of the Poultry and Egg National Board, E. D. Griffin, chairman of the PENB general finance committee, reports. The states are Nebraska, Delaware, Maryland and Connecticut.

The state standings, based on percentages of quota, show that from Aug. 31 through Oct. 31 Indiana pushed its over-quota standing even further skyward — from 109.3% to 115.7%. By the end of October Indiana had collected $18,201.47 to finance PENB promotions of poultry and eggs.

Money which PENB has received through the Feather Fund system of collecting poultry products promotion funds from national and regional feed concerns is not included in figuring the state quota standings.

States that had raised over $10,000 for PENB by Oct. 31, in addition to Indiana, were: Georgia $12,815.29, Texas $10,930.93 and California $11,327.57. Virginia was pushing close to the $10,000 bracket with $9,565.36 raised.

States that had raised over $5,000 for PENB as of Oct. 31, in addition to those already mentioned, were: Ohio $9,795.54, North Carolina $6,484.84, Minnesota $7,001.64, Iowa $5,292.32 and Pennsylvania $6,853.57. At $4,718.64, New York was crowding the $5,000 mark.

Meeting Date Set by Feed Control Group

WASHINGTON—The 1957 meeting date of the Association of American Feed Control Officials will be Oct. 15-17, announces L. E. Bopst, executive secretary of the group.

The schedule will be as follows: Oct. 15—states relations committee; Oct. 16—advance registration beginning at 9 a.m. and main meeting beginning at 1 p.m.; Oct. 17—main meeting continues at 9 a.m., ending about noon.

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Always UNIFORM in size . . . NO WASTE

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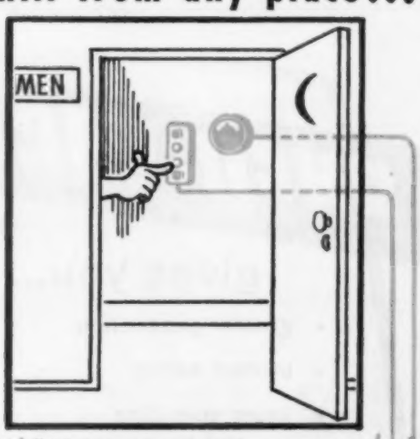
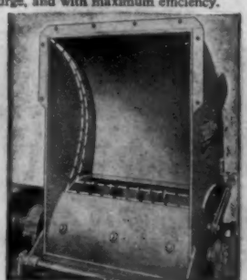
REVOLUTIONARY FORDS Remote Control HAMMERMILL



with electrically operated "PUSH BUTTON" Feed Control

THE ONLY COMPLETE CONTROL FOR ALL 3
Grains • Ear Corn Roughage
By the Push of a Button

The enormous throat provides unobstructed feeding of roughages (even 20" square bales) as well as ear corn and small grains. When the feed control is in closed position no material can enter the mill. This chute, with any type of extension including gravity dump sink above the mill, can be completely filled with material. When the mill is running, the feed control can be opened, by the remote control button, until the ammeter registers the proper horsepower. When stopped at that position, the material will be ground uniformly, without power surge, and with maximum efficiency.



UNIFORM GRANULATION—All material is ground *in suspension* against the feed control plate to the size determined by the grind "setting" before passing through the screen. The action of the hammers on the suspended material pulverizing against the control plate eliminates "stringiness" and provides uniform granulation. Exposed hammers at base of inlet chute provide a "live bottom" to prevent bridging and assure a constant flow of material.

CONTROL YOUR GRIND FROM THE WORK FLOOR... DUMP SINK ...THE MILL...THE OFFICE...OR *ANYWHERE!*

The most outstanding new development in the industry, this new electrically operated remote feed control is exclusive with FORDS Industrial Hammermills. This new unit controls the feeding rate of hay and other roughages, as well as grain and ear corn, into the FORDS mill by the push of a button. Lets you operate the mill from any place—inside or outside the building, or even from another building. Enables you to grind at a uniform, constant rate, with exactly the horsepower available, and assures a true *granulation* from positive "suspension" grinding. Even hay and roughages grind uniformly without variance in particle size or the "strings" common to average grinding. Since it virtually eliminates surges in power demand, the new FORDS Electric Control materially reduces over-all electric power costs. Makes it unnecessary to use a crusher feeder, with motor and drive. Many installations using this new control will not need a drag conveyor and drive for conveying material to the mill. Find out how much you can *save* on time, equipment and operating costs with this new FORDS Remote Control Hammermill.

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Manufacturers of FORDS Hammermills — Molasses Blenders —Vertical Mixers— Corn Shellers— Pneumatic GrainVayors

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The Right Combination OF GROWTH FACTORS

- Antibiotics
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Branded premixes of superior quality. Write for information.

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More Phosphorus—Less Fluorine in

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BRAND
DICALCIUM PHOSPHATE
MINERAL SUPPLEMENT FOR FEED MIXTURES

Add Phos-Feed to your feeds for phosphorus content

- The feed ingredient with phosphorus (18½% and 21%) and calcium in most available form
- Contains LESS fluorine, less than .004% (less than 40 parts per million!)
- A pure, economical source of phosphorus, derived from 99.9% pure Elemental Phosphorus
- Blends well... completely stable... stores without caking
- A *dependable* supply, assured by quality-control from mine to user

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Guaranteed Minimum Phosphorus—23.7%
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SALES WORKSHOP—Maine feed dealers and their employees attended a sales service workshop sponsored by the Beacon Milling Co., Cayuga, N.Y., at Hallowell, Maine, the above picture showing some of the "students." Hugh Hughes, assistant sales manager, was chairman of the workshop. He was assisted by Dr. Lew S. Mix, director of dairy research; Dr. John Snyder, poultry specialist; and Robert Karst, district sales manager. In the picture, from the left, are: Ward Ralph, Waldoboro (Maine) Feed Service; Elmer Smart, Smart's Feed Store, Bangor; Harold Small, S. L. Small & Son, Dexter; Walter Foster, Beacon Milling Co., Oakland; Phineas Meserve, Southern Maine Feed Service, South Portland; Richard Hayes, J. L. Hayes & Co., Lewiston; Clair Wilkens, S. L. Small & Son, Dexter; Mr. Hughes; Richard Woodbury, Woodbury Feed Store, Waterville; Dr. Mix and Dr. Snyder; Arthur McAlister, Beacon Milling Co., Auburn; Elmer Dodge, Bowdoinham (Maine) Grain Store; Kenneth Barden, Barden Grain Store, Augusta; Harry Thomas, Beacon Milling Co., Portland; Norman Ward, Beacon Milling Co., Pittsfield; Thomas Turner and Elwood Hall, A. W. Gilman & Co., Dover-Foxcroft; and Milton Stimpson, Beacon Milling Co., Augusta.

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- greater production
- utmost safety
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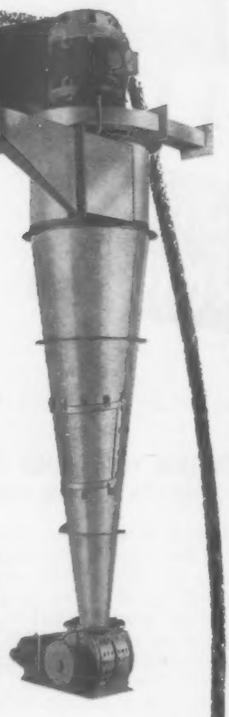

Modernize for greater profits with a Sprout-Waldron Pneu-Vac pneumatic bulk materials handling system. You can pump materials by air anywhere you can run a pipe...without handling losses, without exterior dusting, without product infestation or intercontamination.

Your mill will be clean with Pneu-Vac, and the risk of personal injury is virtually eliminated because no moving parts are adjacent to the operator.

Pneu-Vac does an all-around job on a large-scale basis. It loads, unloads, and conveys materials throughout the plant... quickly, easily, and at low cost. There are no buckets to replace... no belts to renew... no screws to repair.

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... assures expert engineering guidance on installation... plus finest workmanship and service... plus 100% reliability ... at no extra cost.

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BUHLER BROS. FLOUR MILLING EQUIPMENT

FE/457

CCC Reports on Support Stocks Of Feed Grains

WASHINGTON — More than 748 million bushels of corn, 42 million bushels of grain sorghum and 49 million bushels of oats are among the major items in the inventory of the Commodity Credit Corp. as of Sept. 30.

The U.S. Department of Agriculture reports that as of Sept. 30 the CCC investment in price support programs amounted to $7,898,112,000 —made up of loans outstanding of $2,639,349,000 (including $347,269,750 of loans financed by lending agencies) and the cost value of inventories, $5,258,763,000. As of Sept. 30, 1955, the investment was $7,336,491,000 of which loans outstanding amounted to $1,551,278,000 and inventories $5,785,213,000.

Price support operations in corn and wheat on Sept. 30 were in the following amounts: Corn, 360,676,409 bu., $559,401,188; wheat, 176,237,960 bu., $353,314,944.

Major items in the inventory of CCC as of Sept. 30 were as follows: Wheat, 900,277,405 bu.; corn, 748,463,290 bu.; grain sorghum, 42,682,353 cwt.; barley, 55,284,496 bu.; oats, 49,272,481 bu.; dried milk, 225,006,967 lb.

The listing includes 336,667,107 bu. of wheat currently held as set-aside commodities under Title I, Agricultural Act of 1954, Public Law 690, 83rd Congress. Other items in the inventory include refined cottonseed oil, field seeds, butter oil, flaxseed, rye, soybeans and peanuts.

The net realized program loss on price support operations for the three months ended Sept. 30 totaled $320,653,373. For the same period last year the comparable loss was $168,493,719 and for the fiscal year ended June 30, the program loss on price support operations totaled $974,767,365.

California May Alter Brucellosis Control

SACRAMENTO — The California department of agriculture is considering a recommendation of the statewide Bangs disease committee to terminate all official vaccination of adult cattle against brucellosis on Jan. 1, 1957, and bring the brucellosis control program in California into uniformity with the national program.

A public hearing on the question has been held and results are expected shortly. The vaccination of adult cattle is not a recommended procedure and was adpoted in California on a temporary basis to expedite control of bovine brucellosis in certain problem areas of the state.

Department officials feel that with new regulations controlling movement of infected cattle and the constantly increasing vaccination of calves, the vaccination of adult cattle has served its usefulness.

Topics Announced for New Hampshire Parley

DURHAM, N.H. — Well known authorities in the poultry industry are scheduled to be on the program of the University of New Hampshire poultry health conference Jan. 31-Feb. 1, announces Richard Warren, extension poultryman.

Among the speakers and their topics will be: Dr. Henry Van Roekel, University of Massachusetts, "Latest Information on CRD;" Dr. Paul D. Harwood, Hess & Clark, Inc., "Nitrofurans and Their Use;" Dr. F. K. Wills, Maryland Livestock Sanitary Service, "Latest Information on Synovitis;" Lawrence M. Potter, University of Connecticut, "The Feeding of High Level Antibiotics to Layers;" Richard Strout, University of New Hampshire, "Vaccination Recommendations;" Dr. W. R. Dunlop, University of New Hampshire, "Progress Report on New Hampshire's PPLO Testing Program;" Dr. F. V. Washke, Merck, Sharp & Dohme, "Use of Nicarbazin in Raising Meat and Replacement Poultry."

N.M. Cattle Breeders Will Meet on Feb. 18

STATE COLLEGE, N.M. — The New Mexico A&M College has scheduled its 18th annual feeders' day for Feb. 18, it was announced by J. H. Knox, head of the college's animal husbandry department.

The feeders' day program will highlight current research, a review of the marketing situation and an inspection of the college's experimentally-fed animals.

PROPOSE NEW FEED PLANT

AYRSHIRE, IOWA—The Ayrshire (Iowa) Farmers Cooperative Elevator Co. plans to construct a new feed plant here.

An employer was severely reprimanding a meek employee. "Mr. Jones, I understand you've been going over my head," stated the employer.

"Not that I know of, sir," ventured the meek employee.

"Isn't it true that you've been praying for a raise?" asked the employer.

◆ ◆ ◆

"Do you ever have rows with your wife?"

"We used to until we realized I was wrong."

◆ ◆ ◆

Woman: "I'm not prejudiced at all. I'm going with a perfectly open and unbiased mind to listen to what I'm convinced is pure rubbish."

◆ ◆ ◆

After a shipwreck, a doctor, a parson and a lawyer found themselves in a rowing boat without oars. They came in sight of an island, but their only hope of landing was for someone to go over the side through the shark-infested sea and tow the boat to land.

Lots were drawn, and it fell to the lawyer. When he slipped over the side the sharks divided, and made an avenue for him.

"An answer to prayer," said the parson.

"No, no, just professional courtesy," commented the doctor.

◆ ◆ ◆

Reporter: "Do you believe in early marriage?"

Film star: "Certainly, I always have the ceremony in the morning."

◆ ◆ ◆

"Jimmy," said the little fellow's mother after cleaning up his battle scars, "when that other boy threw stones at you, why didn't you come and tell me instead of throwing them back at him?"

"Oh, for Pete's sake, Mom," he replied with disgust, "what good would it do to tell you? You couldn't hit the side of a barn."

◆ ◆ ◆

Wife: "Goodness, George, this is not our baby. This is the wrong carriage."

Hubby: "Shut up. This is a better carriage."

◆ ◆ ◆

An American farmer was taking a vacation in a small town in the south of France and up on his arrival he could understand none. The men spoke French, the women spoke French, and the children jabbered away in the same tongue. In the height of his perplexity he retired to his hotel and was awakened early in the morning by a rooster crowing. He burst into a wild exclamation of astonishment and delight, crying: "Thank goodness! An American at last!"

◆ ◆ ◆

Diplomat: one who thinks twice before saying nothing.

◆ ◆ ◆

Sergeant (to a recruit who has come on parade with a button unfastened): "What's the meaning of this? Sunbathing?"

◆ ◆ ◆

She: "I was a fool when I married you."

He: "Well, don't blame me. I didn't know it at the time."

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Include the term "defluorinated phosphate" on your registration forms, bags and tags, and you can interchangeably formulate with *either* defluorinated or dicalcium phosphate.

The AAFCO definition states: "**Defluorinated phosphate** includes either calcined, fused, or precipitated calcium phosphate. It shall contain not more than one part of fluorine (F) to 100 parts of phosphorus (P). The minimum percentage of calcium (Ca) and Phosphorus (P) and the maximum percentage of fluorine (F) shall be stated on the label. The term '**Defluorinated**' shall not be used as a part of the name of any product containing more than one part of fluorine (F) to 100 parts of Phosphorus (P)." (Adopted 1952.)

This definition covers the use of either defluorinated or dicalcium phosphate, **when you register your feeds to contain defluorinated phosphate.** You can restrict your phosphorus source by inadequate registration.

Register your feeds *now*, so you can use either defluorinated or dicalcium phosphate. And look to *Coronet* for your phosphorus. Coronet offers uniform quality, dependable supply, prompt service and definite delivery advantages.

GUARANTEED UNIFORM ANALYSIS

	Phosphorus	Calcium	Fluorine
CDP	17.0% min.	34.0% min.	0.17% max.

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A DIVISION OF SMITH-DOUGLASS COMPANY, INCORPORATED

CREATE THE TASTE THAT SELLS WITH . . .

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- Anise-Molasses
- Dog Food Flavor
- Fenugreek
- Molasses Extender
- Pig Feed Flavor
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SPECIAL FLAVORS developed to meet your requirements

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Present Status of Knowledge Concerning Turkey Nutrition

By Dr. M. L. Scott
Cornell University

EDITOR'S NOTE: The latest information on turkey nutrition, including turkeys' requirements for various nutrients, is covered by Dr. M. L. Scott of the Cornell University poultry department in the accompanying article. Dr. Scott presents data and comments on energy, amino acid requirements, mineral requirements, vitamin requirements, unidentified factors, factors required for prevention of leg weakness, turkey breeder nutrition and water in turkey feeding. This article is from a talk by Dr. Scott at the Texas Nutrition Conference.

Dr. M. L. Scott

The production of turkeys in the U.S. has increased rapidly over the past eight years. Annual production, which remained at a fairly constant level throughout the war years, was approximately 31 million in 1948. Four years later in 1952, however, over 60 million turkeys were produced.

It is apparent to those concerned with the turkey industry that this increase is not the result of any single factor but was brought about by the development of better methods in a number of fields. While improvements in advertising, marketing, breeding, management and disease control have helped to increase turkey consumption, one of the primary reasons for the phenomenal increase is that turkeys are being produced at a cost which provides high-quality meat for the consumer at a lower price than he pays for other meats.

It is more than coincidence that the greatest advances in experimental research work on turkey nutrition have occurred over the past eight years. Feed manufacturers, always alert for new discoveries in nutrition, wasted no time in translating these research findings into improved turkey rations which resulted in faster and more economical returns to the commercial turkey growers, and enabled them to provide meat at a reasonable cost to the consumer. Since the turkey, like the chicken broiler, is raised for the production of meat, the primary aim in the nutrition of turkeys is to produce the most rapid, uniform growth possible on a minimum amount of the most economically priced feed, and in addition to be sure that this feed contains all of the nutrients necessary for the prevention of deficiency symptoms.

Energy and Its Relationship to the Other Nutrients: Much emphasis has been placed in recent months on the desirability of formulating feeds having the optimum ratio of energy to protein and other nutrients. This is probably the most important consideration in formulating poultry rations. In a series of studies completed in 1948, the author (1) showed that the poor growth occurring in poults receiving a low-energy ration could not be improved by the addition of proteins, known vitamins or unknown factors, but that a marked improvement in poult growth occurred when the energy level was increased. The proper protein level needed with the higher-energy ration

NEW YORK GATHERING—Among the persons taking prominent parts in one of a series of regional meetings for New York feed men are those in the above picture. From the left they are: Prof. Samuel T. Slack, Cornell animal husbandry department, dairy topics leader; Donald Thompson, Rensselaer County agricultural agent, Troy, N.Y.; D. Leo Hayes, county agricultural agent, associate state leader; Dr. Fred W. Hill, Cornell poultry husbandry department, poultry topics leader; Noel Bennett, Barber & Bennett, Inc., Albany, N.Y., feed manufacturing firm, meeting and program chairman, and Leonard Palmer, Albany County associate county agricultural agent. The picture was taken during the Menands, N.Y., meeting, one in a series conducted by the Cornell University college of agriculture and the New York extension service.

was found to be in the order of 28 to 30%.

Table 1 — Approximate Minimum Protein Requirements of Turkeys of Various Ages Receiving High-Energy Rations

Age period weeks	Productive energy cal./lb.	Protein %	C/P
0- 8	820	28	29
8-12	850	20	43
12-16	900	18	50
16-20	940	16	59
20-26	980	14	70
Breeders	900	18	50

Calculation of the productive energy content of the rations used in these studies, according to the values worked out for chicks by Fraps (2), indicated that the optimum caloric: protein ratio for starting poults is approximately 29-30. More recent results by Ferguson and co-workers (3) at Texas A&M have confirmed this relationship. The Cornell studies further showed that the absolute quantity of productive energy in the poult ration is important and should be greater than 800 calories per pound of diet.

As the birds grow older, the absolute quantity of energy should be increased, and the protein level in the diet may be decreased approximately as shown in Table 1.

Quality of the Protein: In referring to "protein" above, the assumption is that proteins of good quality are used. "Good quality proteins" means those that supply all of the essential amino acids in adequate amounts and in proper relationship to each other. The approximate requirements of turkeys for the most important amino acids are given in Table 2. These requirements are expressed in terms of per cent of the total protein in the ration so that the figures may be applied to turkeys of various ages and rations of various energy levels. Insufficient evidence is available to date to allow us to be certain that the amino acid requirements are proportioned to protein requirements throughout the life of the turkey, but until contrary evidence is available, it must be assumed that this is the case.

Table 2—Amino Acid Requirements of Turkeys

Amino acid	Approximate requirement % of total protein
Arginine	5.6 (4)*
Lysine	5.4 (5)
Methionine	2.0**(6)
Cystine	1.3 (6)
Tryptophan	1.0 (7)
Glycine	6.6 (8)
Isoleucine	3.0 (9)

*Figures in parentheses indicate literature references.
**In presence of adequate choline.

Table 3—The Mineral Requirements of Turkeys (Per Pound of Diet)

Minerals	—Approximate amount— required (10, 11) 0-12 weeks	12-20 weeks	20-26 weeks	Breeders
Calcium, %	1.8-2.0	1.5-1.7	1.0-1.2	2.5
Phosphorus, total, %	0.9-1.2	0.7-0.8	0.6-0.7	0.8
Phosphorus, inorganic, %	0.65-0.75	0.5-0.6	0.4-0.5	0.6
Salt, %	0.5	0.5	0.5	0.5
Manganese, mg.	25	25	15	15
Potassium*	?	?	?	?
Iodine*	?	?	?	?
Magnesium*	?	?	?	?
Iron*	?	?	?	?
Copper*	?	?	?	?
Zinc*	?	?	?	?
Molybdenum	?	?	?	?

*These minerals are undoubtedly required. There is no evidence, however, that good rations require special supplementation with any of them, except possibly with iodine, iron and/or copper in certain areas where the soil is deficient in one or more of these elements.

Mineral Requirements: Studies with animals of all species have shown that a number of minerals are required in the diet. A considerable amount of research has been conducted on the calcium and phosphorus requirements of turkeys, but much less is known concerning the requirements of this species for the other mineral nutrients. The data presented in Table 3 show the extent of present knowledge of the mineral requirements of turkeys. No good evidence is available concerning the requirements of turkeys for the "trace minerals." Therefore, it might be wise to add small amounts of these to practical rations, since experience has shown that this will do no harm.

Recent research at Cornell and Texas A&M has demonstrated that chicks and poults require a mineral (or minerals) not listed in Table 3. This unidentified nutrient is required both for growth and for proper bone formation. It is known to be mineral in nature, because it is present in the ash of such materials as distillers dried solubles, fish solubles and dried whey.

Vitamin Requirements: The requirements of turkeys for several of the known vitamins have been studied extensively. The data pre-

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Table 4—The Vitamin Requirements of Turkeys (Per Pound of Diet)

Vitamins	—Approximate amount required (10, 11)— 0-12 wks.	12-20 wks.	20-26 wks.	Breeders
Vitamin A, I.U.	4,000	4,000	4,000	4,000
Vitamin D_3, I. C. U.	600	600	600	600
Vitamin E, I.U.	10	10	10	25
Vitamin K	?	?	?	?
Thiamine	?	?	?	?
Riboflavin, mg.	2	2	2	2
Pyridoxine	?	?	?	?
Pantothenic acid, mg.	7	5	4.5	8
Folacin, mg.	0.4	?	?	?
Niacin, mg.	35	30	25	15
Biotin	?	?	?	?
Choline, mg.	900	800	?	?
Vitamin B_{12}, mcg.	4	2	2	2

sented in Table 4 show the author's interpretation of these data. Some of the values are included in the table in spite of the lack of experimental evidence concerning minimum requirements, but represent levels which were present in rations in which further additions of these vitamins failed to improve results. It is concluded, therefore, that these are safe levels, although lower quantities of these vitamins might also be adequate.

Unidentified Factors: Research studies conducted at Texas A&M, Cornell, Maryland and at many other laboratories working on turkey nutrition have shown that poults require several unidentified factors for growth and that turkey breeders require one or more of these factors for maximum hatchability.

The work in the author's laboratory shows good evidence for at least two organic unknown factors and probably one mineral factor. One of the organic factors appears to be present in largest amounts in products of animal origin such as fish solubles, some samples of fish meal (especially herring meal) and in liver. The other organic factor is present in largest amount in fresh forage juice but is also present in dried whey, other milk by-products and in dried brewers yeast. Distillers dried solubles appears to be the best source of the mineral factor.

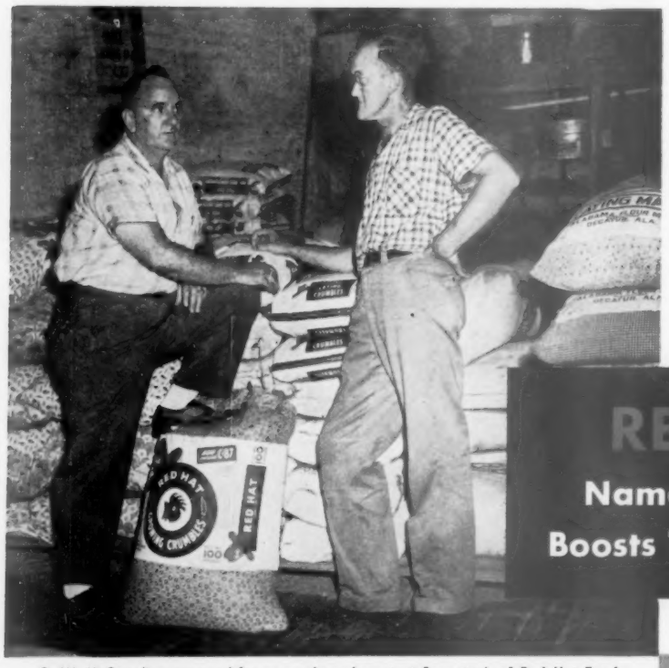
In some way, the growth-promoting properties of one of the unknown factors are interrelated with the effects of minute amounts of antibiotics added to the diets of turkeys. Results at Cornell (12), confirmed by others, have shown that addition of antibiotics to the starting ration spared to a great extent the requirement of the poults for the factor present in grass juice and certain other special substances during the early growth period. Apparently, however, this unidentified factor-sparing effect of antibiotics does not continue throughout the complete growth period of the turkey. If an antibiotic is added to a diet which does not contain a special source of the unidentified factor, the growth-promoting effect of the antibiotic may disappear by the time the turkey is 12 to 14 weeks old. On the other hand, growth is stimulated throughout the turkey's complete growth period when enough of the unidentified factor is present in the diet. Greatest improvement in growth at market time has been achieved by combining sources of the unidentified vitamin with a low level of an antibiotic. Undoubtedly, one of the recent advances in feeding turkeys is the discovery that the addition of a few parts per million of an antibiotic to turkey rations causes marked improvement in growth and efficiency of feed utilization.

Factors Required for Prevention of Leg Weakness: Because leg weakness has long been a problem in commercial turkey production, a great deal of attention has been given to the nutritional factors required for its prevention. The nutritional requirements for preventing perosis in turkeys appear to differ from those needed to protect chicks from this condition. Manganese, the primarily important factor in preventing perosis in chicks, is not the most important one for perosis prevention in turkeys. Choline is more important for turkeys. Most turkey rations, therefore, should contain choline-rich supplements during the starting period to insure against perosis caused by choline deficiency. Turkeys also require biotin for the prevention of perosis. Studies indicate, however, that rations composed of the usual feed ingredients supply sufficient amounts of biotin without special supplementation.

Recent experimental work at Cornell (8, 13) indicates that the niacin required to prevent the perosis-like syndrome called enlarged hock disorder is much higher than the level shown to be required for maximum growth. The Cornell work shows that turkeys receiving a diet of corn, wheat, oats, soybean meal and fish meal, with appropriate mineral and vitamin supplements, require approximately 35 milligrams of niacin per pound of ration to prevent this disorder. Since most practical rations contain only approximately 20 milligrams of niacin per pound, it appears necessary to use niacin supplements to provide an additional 15 to 20 milligrams per pound of ration in order to insure prevention of the enlarged hock disorder due to niacin deficiency.

Further work at Cornell has shown that in similar practical rations containing a high level of cod liver oil, supplemental vitamin E is also required to prevent the enlarged hock disorder. It appears from this work that the easily oxidizable fatty acids in cod liver oil destroy vitamin E in the ration and/or the body of the young turkeys, allowing the enlarged hock disorder to develop. Because vitamin E is concerned in the prevention of the enlarged hock disorder, and since this vitamin is very unstable and easily destroyed in practical rations, it appears to be desirable to supplement turkey rations with vitamin E. This is most important where economic loss has been experienced because of leg weakness in commercial flocks.

As a further demonstration that leg weakness in turkeys is a very complicated problem, it appears that an unidentified vitamin present in dried brewers yeast is also required for its prevention. In most instances leg weakness may be prevented by adding to practical rations all of the vitamins and minerals known to be required for the prevention of perosis, including a high level of niacin and vitamin E. At times, however, unless



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the diet contains 1.0% to 2.0% of dried brewers yeast, enlarged hocks cannot be prevented.

In view of these results, it is recommended to turkey growers who are experiencing economic loss from leg weakness that they include in their turkey rations 40 grams of niacin and 5 grams of alpha-tocopheryl acetate (vitamin E) per ton of feed plus 1.0% to 2.0% of dried brewers yeast.

There are certain types of hock disorder in turkeys which do not appear to be caused by nutritional deficiencies. In the course of studies on the enlarged hock disorder, which were undertaken at Cornell, it was observed that different strains of turkeys exhibit differing degrees of susceptibility to this disorder. In some strains the disorder is completely prevented by the addition to the diet of dried brewers yeast and the known antiperotic factors including niacin and vitamin E. In other strains, however, some leg weakness occurs in spite of adequate supplementation with all of these factors. Evidence has been obtained at Cornell that the latter type of hock trouble may be due to genetic factors, since rigid genetic selection apparently can eliminate it from a flock.

Environmental stresses appear to have great influence upon the incidence and severity of hock trouble in turkeys. Over-heating, chilling, the use of wide-mesh wire floors, crowding, starvation and disease all contribute to the development of this disorder. Reduction of leg weakness to a minimum, therefore, can be accomplished only by a combination of proper nutrition, management and genetic approaches.

The Nutrition of Turkey Breeders: Experiments conducted at Cornell (14) during the past five years have shown that for optimum hatchability, practical rations for turkeys must contain adequate vitamin E. These results have been confirmed by workers at Texas A&M College (15, 16, 17). Since vitamin E is required both for normal hatchability in breeding turkeys and for the prevention of the enlarged hock disorder in growing turkeys, turkeys evidently have a fairly high requirement for this vitamin. It is advisable, therefore, to supplement turkey breeding rations with adequate vitamin E, not only for good hatchability but also for an adequate carry-over in the young poult at hatching time, which will lessen the tendency for the poult to develop symptoms of the enlarged hock disorder.

In recent experiments on hatchability with turkey breeders, conducted at Cornell, it was found that diets containing 5% of fresh grass juice not only caused marked improvement in hatchability of fertile eggs, but also improved the quality of the poults produced, and markedly decreased early poult mortality. Apparently, the unidentified factor present in fresh grass juice and other carriers is required, not only for early poult growth, but also for optimum reproduction.

Water: In any general discussion of nutrition, the importance of adequate drinking water should not be overlooked. Without sufficient water the best rations will not produce

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Nutrition is a very important phase of turkey production. Advances in nutrition must, however, go hand-in-hand with improvements in breeding, management and disease control; for it is only by improving all phases of production that real progress can be made in helping the turkey grower to produce this high-quality meat for the consumer at lower prices than he pays for other meats.

If the feed manufacturer can help the turkey grower to achieve this aim, he will find more turkey-growing customers for his feeds.

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SERIOUS FIRE PREVENTED

MINNEAPOLIS — An alert police officer probably prevented an explosion and fire from causing extensive damage at the Hiawatha Grain Company's mill and elevator here. The officer was riding in the vicinity of the elevator when he heard the explosion and saw smoke. He called firemen who arrived in time to confine the fire mainly to the dust collector.

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CONVENTION CALENDAR

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings a new procedure has been established in making up this department. The listings added to the column in the current week appear ahead of the ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

1957

Jan. 31-Feb. 1—University of New Hampshire Poultry Health Conference; University of New Hampshire, Durham, N.H.; chm., Richard Warren, extension poultryman.

Feb. 18 — New Mexico Feeders Day; New Mexico A&M College, State College, N.M.; chm., J. H. Knox, animal husbandry department.

May 20-21 — National Cottonseed Products Assn.; Shoreham Hotel, Washington, D.C.; sec., John F. Moloney, 19 S. Cleveland St., Memphis 4, Tenn.

Oct. 16-17—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; exec. sec., L. E. Bopst, Room 036 New Chemistry Bldg., University of Maryland, College Park, Md.

1956

Nov. 12-13—Missouri Feed Conference; Memorial Union Bldg., University of Missouri, Columbia; chm., Dr. W. H. Pfander, Mumford Hall, University of Missouri, Columbia, Mo.

Nov. 14-15—Illinois Feed Assn. and Illinois Poultry Improvement Assn., joint meeting; Armory, Leland Hotel (IFA) and St. Nicholas Hotel (IPIA), Springfield, Ill.; sec., IFA, Dean M. Clark, Board of Trade Bldg., Chicago, Ill.; sec., IPIA, Aubrey Harless, Box 91, Shelbyville, Ill.

Nov. 16—School for Poultry Servicemen in Feed and Allied Industries; College of Agriculture, Rutgers University, New Brunswick, N.J.; chm., C. S. Platt, Poultry Department.

Nov. 18-19—Tennessee Feed Manufacturers Assn.; Hermitage Hotel, Nashville, Tenn.; sec., Wendell H. Levine, 200 Baxter Bldg., Nashville.

Nov. 19-20—Western Grain & Feed Assn.; Fort Des Moines Hotel, Des Moines, Iowa; exec. sec., Mark G. Thornburg, 928 Des Moines Bldg., Des Moines 9, Iowa.

Nov. 20—West Virginia Feed Dealers Assn. Short Course; Appalachian Power Co. Auditorium; chm., Gerald C. Anderson, animal husbandry dept., West Virginia University, Morgantown, W.Va.

1957

Nov. 23-24 — American Society of Animal Production; Hotel Sherman, Chicago; sec., W. M. Beeson, Dept of Animal Husbandry, Purdue University, Lafayette, Ind.

Nov. 26-27—American Corn Millers Federation; Drake Hotel, Chicago; sec., Harry Hunter, 173 W. Madison St., Chicago 2, Ill.

Dec. 3-4—Farmers Elevator Assn. of South Dakota; Huron, S.D.; sec., C. C. Anderson, 423 Citizens Bldg., Aberdeen, S.D.

Dec. 3-5—Midwest Feed Production School, Muehlebach Hotel, Kansas City, Mo.; sponsored by Midwest Feed Manufacturers Assn.; Lloyd S. Larson, executive vice president, 20 W. 9th St. Bldg., Kansas City, Mo.

Dec. 6-7—Washington Animal Industry Conference; Western Washington Experiment Station, Puyallup, Wash.

Dec. 6-7—North Carolina Animal Nutrition Conference; North Carolina State College, Raleigh, N.C.; chm., George Wise, Animal Nutrition Section, North Carolina State College, Raleigh, N.C.

1957

Jan. 7-8 — Kansas Formula Feed Conference, Kansas State College, Manhattan; chm., F. W. Atkeson, head of department of dairy husbandry, Kansas State College, Manhattan.

Jan. 8-10 — National Turkey Federation, Cincinnati, Ohio; exec. sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 11-12—Kansas Seed Dealers Assn.; Hotel Broadview, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

Jan. 13-15—New Mexico Grain & Feed Dealers Assn.; Hilton Hotel, Albuquerque, N.M.; exec. sec., H. B. Hening, P.O. Box 616, Albuquerque, N.M.

Jan. 14-15—Northwest Retail Feed Assn.; Hotel Nicollet, Minneapolis; sec., W. D. Flemming, 112 Grain Exchange Bldg., Minneapolis 15, Minn.

Jan. 14-16—Conference on Processing of Cottonseed Meal as Related to Its Nutritive Value; Southern Utilization Research Branch, U.S. Department of Agriculture, 1100 Robert E. Lee Blvd., New Orleans, La.; chm., Dr. A. M. Altschul, Southern Utilization Research Branch, 1100 Robert E. Lee Blvd., New Orleans 19, La.

Jan. 20-22—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

Jan. 22-23—North Dakota Poultry Industries Convention; Elks Club, Fargo, N.D.; Irving J. Mork, North Dakota Agricultural College, State College Station, Fargo, N.D.

Jan. 23-24 — Massachusetts Dairy Farmers Seminar; University of Massachusetts, Amherst, Mass.

Jan. 24-26—Boston Poultry Show and New England Poultrymen's Conference; Mechanics Bldg., Boston; chm., Dr. Alfred Van Wagenen, Northeastern Poultry Producers Council, 10 Rutgers Place, Trenton, N.J.

Jan. 28-30 — Southeastern Poultry & Egg Assn.; Dinkler-Plaza Hotel, Atlanta; exec. sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Jan. 30-Feb. 2—American Dehydrators Assn., Edgewater Gulf Hotel, Edgewater Park, Miss.; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City, Mo.

Jan. 31-Feb. 1—University of New Hampshire Poultry Health Conference; University of New Hampshire, Durham, N.H.; chm., Prof. W. C. Skoglund, Poultry Dept.

Feb. 4-6—Assn. of Southern Agricultural Workers, Birmingham, Ala.

Feb. 5-6—Hoosier Turkey Trot; Purdue University; sec., David D. Jackson, Indiana State Poultry Assn., Turkey Dept., Poultry Bldg., Purdue University, Lafayette, Ind.

Feb. 7-8—Oregon Animal Industry Conference; Oregon State College, Corvallis; chm., Dr. J. R. Parker.

Feb. 10-12—Wyoming Grain, Feed & Seed Dealers Assn.; Casper; sec., Everett L. Berry, P.O. Box 118, Sheridan, Wyo.

Feb. 14-15 — Washington State Feed Assn.; Olympic Hotel, Seattle; sec., J. G. Wilson, 814 Second Ave. Bldg, Seattle 4, Wash.

Feb. 14-15 — Utah Feed Manufacturers & Dealers Assn.; Brigham Young University, Provo, Utah; sec.-treas., Dr. Lawrence Morris, Animal Husbandry Dept.

Feb. 15-17—Institute of American Poultry Industries Fact Finding Conference; Municipal Auditorium, Kansas City, Mo.; pres., Cliff D. Carpenter, 221 North LaSalle St., Chicago 1, Ill.

Feb. 17-19 — Midwest Feed Manu-

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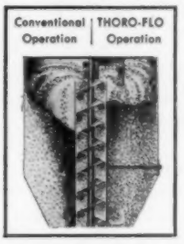

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facturers Assn., Broadmoor Hotel, Colorado Springs, Colo.; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

Feb. 19-20 — Virginia Polytechnic Institute Nutrition School for Feed Men; Hotel Roanoke, Roanoke, Va.; chm., Paul M. Reaves, dept. of dairy science, VPI, Blacksburg, Va.

Feb. 24-26—Ohio Grain & Feed Dealers Assn.; Neil House Hotel, Columbus, Ohio; sec., G. E. O'Brien, Ohio St., Greenville, Ohio.

Feb. 24-26—Colorado Grain, Milling & Feed Dealers Assn.; Denver, Colo.; sec., R. B. Kelly, 714 Cooper Bldg., Denver 2, Colo.

March 13—Distillers Feed Conference; Sheraton-Gibson Hotel, Cincinnati, Ohio; exec. director, Lawrence E. Carpenter, 1282 Enquirer Bldg., Cincinnati, Ohio.

March 13-17 — Grain Processing Machinery Manufacturers Assn.; Edgewater Gulf Hotel, Edgewater Park, Mississippi; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

March 14-17 — Pacific Dairy & Poultry Assn.; Ambassador Hotel, Los Angeles; assn. office, 1304 E. Seventh St., Los Angeles 21, Cal.

March 14-15—Oregon Feed & Seed Dealers Assn., Multnomah Hotel, Portland; mgr., Huss Hayes, Lewis Bldg., Portland 4, Ore.

March 17-18—Quad-State Convention; Martin Hotel, Sioux City, Iowa; sec., Don Suttie, Sioux City Grain, Feed & Seed Assn., Box 341, Sioux City.

March 21-22 — Maryland Nutrition Conference; Shoreham Hotel, Washington, D.C.; chm. Dr. G. Lynn Bomoser, Department of Poultry Husbandry, University of Maryland, College Park, Md.

April 4-6—Animal Health Institute, annual meeting; Greenbrier, White Sulphur Springs, W. Va.

April 10-11—Texas Feed Manufacturers Assn.; Gunter Hotel, San Antonio, Texas; sec., Ben E. Schmitt, 528 Bewley Bldg., Ft. Worth, Texas.

April 12-13—Texas Grain & Feed Dealers Assn.; Gunter Hotel, San Antonio, Texas; sec., Ben Ferguson, 614 Meacham Bldg., Ft. Worth 2, Texas.

April 25-27—Kansas Grain & Feed Dealers Assn.; Broadview Hotel, Wichita, Kansas; sec., O. E. Case, 901 Wiley Bldg., Hutchinson, Kansas.

April 26—Indiana Cattle Feeders Day; Purdue University, Lafayette, Ind.; chm. W. M. Beeson, Department of Animal Husbandry, Purdue University, Lafayette, Ind.

April 26-May 1—National Fisheries Institute; Edgewater Beach Hotel, Chicago; Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 1-3 — American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec.-treas., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

May 19-20 — Missouri Grain, Feed & Seed Assn., Hotel Connor, Joplin, Mo.; sec., D. A. Meinershagen, Eagle Mill & Elevator, Higginsville, Mo.

June 9-11—Indiana Grain & Feed Dealers Assn.; French Lick-Sheraton Hotel, French Lick, Ind.; sec., Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4, Ind.

June 10-11—Eastern Federation of Feed Merchants; Hotel Commodore, New York; exec. dir., Austin W. Carpenter, Sherburne, N.Y.

June 11-12 — Montana Nutrition Conference; Montana State College, Bozeman; chm., O. O. Thomas, Animal Industry Department.

June 17-18—Georgia Feed & Poultry Conference; Dinkler Plaza Hotel, Atlanta; sec., Will L. Kinard, 3240 Peachtree Road Bldg., Room 210, Atlanta 5, Georgia.

June 17-19—Association of Southern Feed & Fertilizer Control Officials; Dinkler-Tutwiler Hotel, Birmingham, Ala.; sec., Bruce Poundstone, Kentucky Agricultural Experiment Station, Lexington, Ky.

Sept. 11-13 — American Pet Food Manufacturers; Drake Hotel, Chicago; sec., R. L. Kathe, APFM Division of American Feed Manufacturers Assn., 53 W. Jackson Blvd., Chicago 4, Ill.

Oct. 3-4—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, poultry science department.

Oct. 7-9 — Northeastern Poultry Producers Council Poultry Exposition and Convention; Farm Show Bldg., Harrisburg, Pa.; chm., Alfred Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

Oct. 14-16—Virginia State Poultry Federation; Hotel Roanoke, Roanoke, Vt.; chm., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

SUPPLEMENT PRICE CUT

ROCHESTER, N.Y. — Distillation Products Industries has announced a price reduction for Myvamix vitamin E feed supplement to $1.80 lb. in 100-lb. drums and $1.85 lb. in 25-lb. drums. In lots of 1,000 lb. or more prices are 10¢ lower.

The reduction is the sixth made in the past three and a half years, the company points out in an announcement to the trade.

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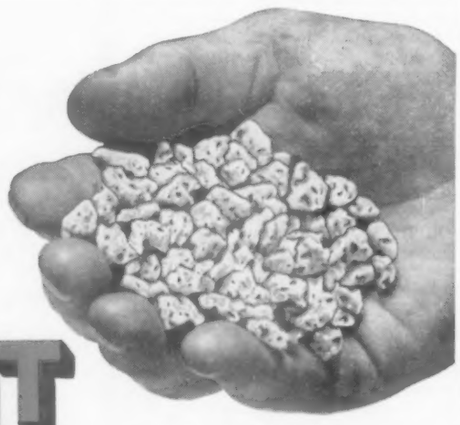

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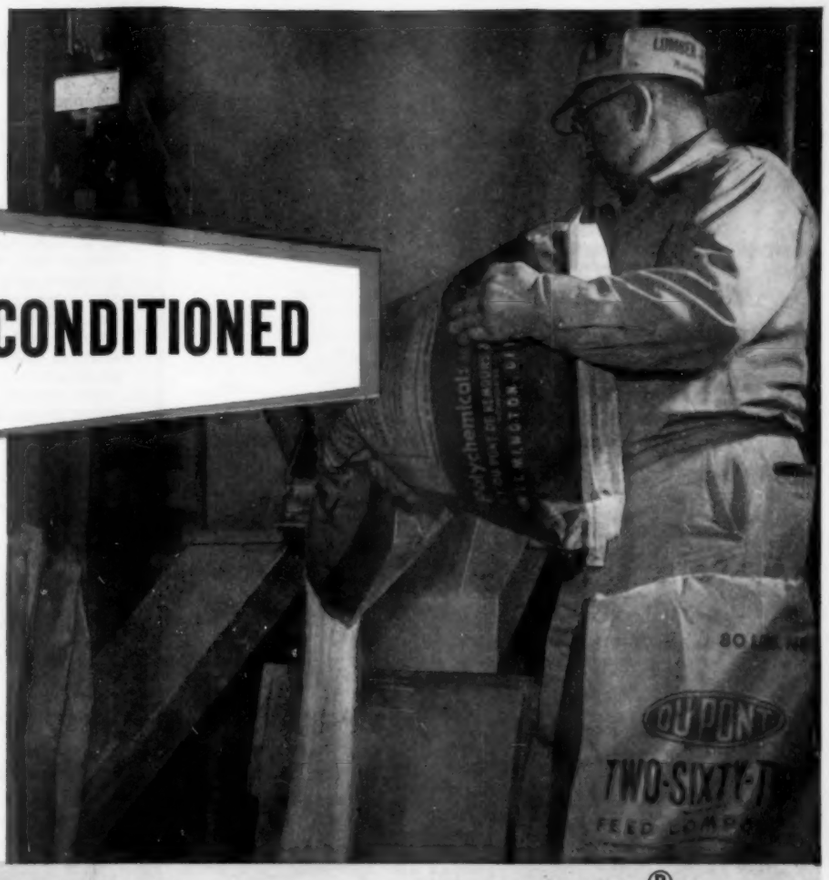

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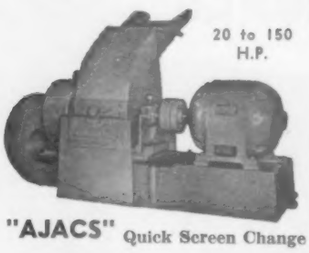

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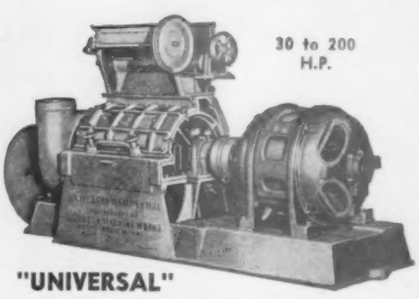

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(Continued from page 16)

arrangement of feeding, watering and roosting equipment over a pit cleaned mechanically to increase collection of manure and provide an easy way for manure removal.

Salesmanship

Advice on improved salesmanship in the feed industry was provided by George Hill, business administration professor at Oklahoma A&M. Among the important points he mentioned are friendliness, cooperation and informed advice for the customer on feeding, disease, marketing and other problems.

He pointed out that one important thing is to know the character of customers and their needs and help them meet their objectives. If a product is otherwise good, he went on to advise, it is important to sell the little extras, too. The value of advertising was also mentioned.

Dr. Rollin H. Thayer of the Oklahoma poultry department described high energy rations for poultry and their use in modern feeding systems. Rate of gain, per cent egg production and feed conversion efficiency are being progressively improved through use of high energy rations, he pointed out. A complete description of the feeding system used in the Oklahoma Egg Laying Test is provided in an Oklahoma Experiment Station bulletin, No. B-489.

Sheep Nutrition

Some of the basic principles of sheep nutrition were outlined by Robert L. Noble of the A&M animal husbandry department. He explained the nutritive requirements of sheep and offered advice on feeding ewes and fattening feeder lambs.

In fattening lambs, he said, rations containing 45% concentrates and 55% roughage have been best in economy and rate of gain. Pelleting of both the concentrate and roughage in a combination pellet has improved results, although cost of pelleting has increased cost of gain. Self-feeding, Prof. Noble said, usually gives good results.

Turkey Feeding

In summarizing economic guides for choosing rations for market turkeys, Dr. James Plaxico, Oklahoma A&M agricultural economist, recommended considering alternate rations. The ration fed to market turkeys in Oklahoma during the growing and finishing period consists of a growing mash and whole grain or mixture of grains. The choice of the grain or grains depends on availability, cost and relative nutrient value. To provide growers with a quick basis for evaluation of alternate grains, the college conducted a study and prepared a guide to help producers select the optimum grain ration under any set of price relationships.

In general, this research shows that there is an important relationship between the grain fed and mash consumption per pound of gain, under various price relationships, and that selection of the grain to be fed is very important.

Dr. Plaxico noted that in the research, it was found that there was an important difference between efficiency of use of feeds associated with sex.

Amino acid inter-relationships in feed were discussed by Dr. D. A. Benton of the agricultural chemistry research department at the college. For economical use of the protein in feed, he noted, it is important to have a good balance of the essential amino acids.

Addition of amino acid supplements shows great possibilities for improving amino acid balance. Not only will this make a more productive feed, said Dr. Benton, it may allow one to reduce the amount of protein without a loss in feed quality.

He emphasized that incorrect addition of amino acids may be detrimental, and he offered suggestions for proper use of amino acids.

Hormone Feeding

As part of a discussion of hormone feeding of dairy cattle, Dr. Stanley Musgrave of the Oklahoma dairy department commented on the use of thyroactive supplements. Apparently, he said, the feeding of these supplements during the general period of 40 to 60 days post partum to 60 to 90 days before the next parturition can be expected to increase milk and butterfat production if the cow is capable of producing large amounts of milk and if sufficient extra feed is provided.

It appears, said Dr. Musgrave, that thyroactive supplements should be withdrawn from the ration over a period of time, 15 to 30 days, if a sudden drop in milk production is to be minimized.

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The Kansas Farmer—114,571 Readers.
The Kansas Stockman—8,500 Readers.
The Farmer-Stockman (Oklahoma)—165,708 Readers.
The New Mexico Stockman—17,662 Readers.
The Colorado Rancher—43,789 Readers.
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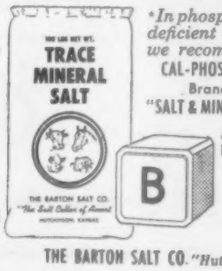

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a thyroactive feed supplement is still not agreed on by researchers.

Apparently, he said, it is more practical to feed thyroprotein for short periods of time rather than for the entire lactation.

The vast increase in medication through the feed was noted in a talk on feed additives by Dr. W. P. Johnson, director of research development, American Cyanamid Co., New York. He said that the choice of drug by the feed manufacturer for use under specific conditions should be made on evaluation of the extensive studies conducted by the drug manufacturer, feed manufacturers and independent researchers, and the research facilities and reputation of the drug firm.

Oklahoma agriculture's past trends, current problems and future prospects were discussed by Prof. G. P. Collins, Oklahoma agricultural economist. Current problems include limited opportunity to expand production of the state's two major crops, wheat and cotton, because of national surpluses, the price-cost squeeze for the livestock industry, difficulty of expanding market outlets for dairy and poultry products, and difficulty in developing production and markets on a commercial scale for such crops as vegetables and fruit.

Dr. Collins noted, among other things, that demand for animal food products is expected to increase, but an increase in production efficiency is needed to assure improved profits.

Morrison Book on Feeds and Feeding In 22nd Edition

ITHACA, N.Y.—New developments are given particular emphasis in the 22nd edition of "Feeds and Feeding," by Dr. Frank B. Morrison, emeritus professor of animal husbandry and animal nutrition, Cornell University, and associates.

The volume has been revised and rewritten because of the many discoveries made in nutrition and livestock feeding during recent years, the author said.

The numerous experiments are summarized which have dealt with antibiotic, arsonic and surfactant supplements, and with hormones, including stilbestrol.

Information is given concerning the requirements of each class of stock for the various vitamins, including vitamin B_{12} and the unidentified vitamins or factors. The amino acid needs of the different farm animals are discussed in detail. The amounts of the various essential amino acids required by swine and poultry are stated, so far as data are available.

Information provided covers the nutrition, feeding, care and management of the various classes of farm animals, including poultry. The composition, use and nutritive value of all important livestock feeds and particularly the recent discoveries in animal nutrition and livestock feeding, are emphasized.

The book has over 1,000 pages and more than 600,000 words. By using two columns per page, the text material can be read more easily, and the number of words on a page is increased over 20% compared with previous editions, the author states. More than 200 illustrations are provided.

Part I of "Feeds and Feeding" presents the important principles of animal nutrition and recent discoveries of the scientists. The bearing of these on the practical feeding of livestock is emphasized. Separate chapters are devoted to proteins, fats, carbohydrates and to minerals and vitamins.

In this part of the book appear detailed discussions of the special requirements for growth, fattening, milk production, work, wool production and maintenance. The method of computing balanced rations for livestock is explained. Experiments are summarized which show what methods of preparing feeds are most economical.

Part II gives information about the composition, uses and value of practically all the feeds used in this country. The manurial value of feed is discussed in a separate chapter.

Part III gives facts on the nutrition, feeding, care and management of all classes of farm animals. Included are two chapters that deal with poultry.

1.5 Billion Broilers By 1970, 2.6 Billion By 2000 Held Possible

DURHAM, N.H.—It's too bad that some of the recent excessive production of broilers couldn't have been deferred somewhat. At any rate, some recent University of New Hampshire estimates of future consumption of broilers show the large potential increase in demand which is possible with a growing population and increased per capita consumption.

Prof. W. C. Skoglund, chairman of the New Hampshire poultry department, points out that if population increases as expected and if per capita consumption of broiler meat continues to rise, the U.S. will need annual production of some 1.5 billion broilers by 1970 and more than 2.6 billion by the year 2000.

Taking into consideration the Census Bureau projections of our population, Prof. Skoglund comes up with some interesting calculations as prospects for increased demand for broilers. See the accompanying table.

Even if per capita consumption of broilers does not increase, the nation will need 84% more broilers in the year 2000 than it now raises to meet the demand resulting from population growth alone.

If, by aggressive promotion, the industry can increase per capita use by only .1 lb. annually, it will have to produce 146% more broilers in the year 2000 to meet demand resulting from population growth.

Potential Consumption of Broilers in U.S.
(Based on Human Population Predictions)
(000's omitted)

Year	Schedule A	Schedule B
1955	1,063,375	1,063,375
1960	1,154,173	1,197,271
1970	1,347,365	1,498,302
1980	1,482,629	1,759,446
1990	1,702,707	2,147,776
2000	1,956,247	2,163,687
Total increase	892,872 (84%)	1,550,312 (146%)

Schedule A—Based on a steady per capita consumption of 13.39 lb. ready-to-cook broiler.

Schedule B—Instead of a steady per capita consumption of broiler this assumes an annual increase of 0.10 lb. per capita.

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Atrophic Rhinitis Cuts Pig Growth After Weaning

WASHINGTON—The swine disease atrophic rhinitis apparently does not affect a sow's productivity, but it does slow down the growth rate of affected pigs after weaning. This finding and some other rather surprising discoveries about atrophic rhinitis have been reported following recent U.S. Department of Agriculture tests on sow productivity and rate of growth of pigs under record-of-performance conditions.

USDA studies on the economic effects of atrophic rhinitis in an experimental swine herd also showed that the growth-inhibiting effect becomes progressively greater with age. Normal pigs outweighed affected ones by 3.9% at 56 days of age and 6.4% at 140 days, as well as by 5.2% in daily gain.

Veterinarians R. D. Shuman and F. L. Earl were impressed with the continued normal-appearing thriftiness of the herd under study—in contrast to the herd damage expected. This adds to the puzzling and often-contradictory aspect of a disease that has been plaguing U.S. swine herds for at least 12 years.

Reported in the U.S. only since 1944, atrophic rhinitis is now considered a major disease of swine. Its cause is not yet known. The disease itself does not kill. Major economic loss comes from slower body development. Pneumonia sometimes occurs as a secondary complication. Researchers found in the experimental herd, however, that pneumonia lesions appeared as frequently among animals without evidence of rhinitis as among affected ones. Sometimes, diseased animals show no outward ill effects of the disease at all.

Research Work

Researchers determined sow productivity by checking total number of pigs born, number living and weight per individual and litter at 56 days of age. Growth rate of pigs whose records of performance (R.O.P.) were being kept was measured by individual weights at 140 days of age and the average daily gain from weaning to a final weight of about 215 lb.

Of the 212 sows in the sow-productivity study, 121 were normal and 91 had atrophic rhinitis. Affected sows had more pigs per litter than normal sows—8.9, compared with 8.5. But affected sows had a greater proportion of stillborn pigs per litter than normal sows—7%, compared with 4.6%. Normal sows averaged 6.8 pigs per litter at 56 days of age, compared with 6.2 pigs per litter for sows with atrophic rhinitis. Individual pigs from affected sows averaged 36.8 lb. in weight compared with 36.2 lb. for pigs from normal sows. Average litter weight of the normal sows was 246.4 lb. compared with 222 lb. for affected sows.

Of the 284 R.O.P. pigs studied, 146 were normal and 138 had atrophic rhinitis. At 56 days of age, normal pigs averaged 38.4 lb., affected pigs 36.9 lb.; at 140 days of age, normal pigs averaged 161.7 lb., affected pigs 151.3 lb. The advantage was also reflected in daily gain from weaning to about 215 lb. Normal pigs gained 1.52 lb. per day compared with 1.44 lb. per day for pigs with atrophic rhinitis.

Early work showed much variation among breed groups in pigs born, number alive per litter at 56 days, individual weights and incidence of rhinitis. To eliminate the effect of such differences, all comparisons were made on an intrabreed group basis, using only breed groups in which both normal and affected animals were represented in one season. All data on individual weights and rate of gain were corrected for sex differences.

Slow Gainers May Require Extra Amount of Vitamins

CORVALLIS, ORE.—Slow gaining livestock may need extra amounts of vitamins. This is indicated by animal husbandry researchers at Oregon State College.

Vitamin deficiencies can be inherited, the researchers point out. Ralph Bogart and Robert Mason have found that normal-appearing mice can pass on to their offspring needs for certain vitamins much higher than what they get from a normal ration. If higher needs aren't met, these offspring die.

Four strains of mice were crossed last year, and several offspring wouldn't grow on the stock ration after weaning, according to the research report in a college publication, Oregon's Agricultural Progress. In all cases one parent had high thyroid activity, indicating they used vitamins at a faster-than-normal rate. The other parent passed on only normal ability to digest and store vitamins. Result: Offspring used vitamins faster than they could get them from their feed.

When B-vitamins were added to the ration, these mice resumed growth and eventually weighed the same as normal mice raised on the stock ration. Many high-vitamin-requiring mice were able to survive on the stock ration once they reached full growth, but could not reproduce unless extra B-vitamins were added.

When "saved" mice were mated, their offspring had to be given extra B-vitamins throughout life to survive.

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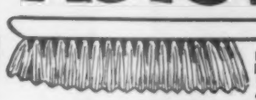

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Fred J. Klatte

JOINS CSC — Fred J. Klatte has joined the Commercial Solvents Corp. as a salesman for animal nutrition products. According to James V. O'Leary, general manager, biochemicals division, Mr. Klatte's territory will be the Iowa area. He will handle sales and service on the company's line of basic animal feed ingredients. Mr. Klatte did his undergraduate work at the University of Connecticut and received his M.A. degree in animal husbandry at Rutgers University.

during the suckling period, too. Diet of some mothers had to be fortified for the young to continue growing. Mothers were giving plenty of milk, but it did not contain enough vitamins for high-vitamin-requiring mice to survive.

Applied to Livestock

How can these findings be applied to livestock?

The researchers point to possibilities:

1. For one thing, young livestock losses or slow early gain may be caused by a higher-than-usual vitamin need. Scouring and rough coats are two symptoms of vitamin deficiency. Perhaps vitamin treatment will stop these troubles. Further research is needed, however, the scientists say.

2. Normal-appearing strains of livestock may produce offspring with higher-than-normal vitamin requirements. This sometimes makes selection difficult. At Oregon State, animals that show a good rate of gain on test may do poorly under rigorous range conditions. This means selection might best be made when only a minimum ration has been fed. Abnormal animals may do well when well fed, but normal animals probably still do well when fed poorly.

Utah State Dedicates Agriculture Building

LOGAN, UTAH—Utah State Agricultural College, Logan, recently dedicated its new $1,198,000 agricultural science building named in honor of Dr. Elmer G. Peterson, who was president of the college from 1916 to 1945.

The building will provide research and study facilities for the college faculty and students as well as providing space for a score of U.S. government research scientists. Dr. Byron T. Shaw, administrator of the Agricultural Research Service, was the main speaker at dedication ceremonies.

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Terramycin Approved For Use in Preventing Shipping Fever

TERRE HAUTE, IND.—The Food and Drug Administration has accepted the use of the antibiotic Terramycin mixed in beef conditioning feeds as a means of preventing and treating the shipping fever complex, according to agricultural scientists of Chas. Pfizer & Co., Inc.

Claims for Terramycin feed supplements in preventing and controlling shipping fever are based on data from five years of controlled field trials involving 28,000 head of cattle, the company said.

The shipping fever complex is estimated to cause $25 million worth of losses in the U.S. beef cattle industry each year, and the scientists say that there has been a marked recent increase in interest among beef producers in keeping this group of diseases in check.

A spokesman for the U.S. Department of Agriculture is quoted as saying that there are three major reasons for the increased interest: (1) Most producers are now working on a narrowed profit margin and cannot afford to take losses they once absorbed with ease. (2) There are more cattle now than in previous years and more movement of cattle as the industry becomes more specialized, tending to compound losses due to disease. (3) In the last few years what appeared to be several new diseases of beef cattle have been identified. They are enough like "shipping fever" for the producer to lump them all under that complex, thus increasing their importance.

Dr. Gail E. Hawley of Pfizer's agricultural research center at Terre Haute, said: "Shipping fever usually follows a period of prolonged chilling. Whether or not the cattle are moved or remain on the home ranch is of little importance. The prevention and treatment program using Terramycin in the feed is very economical, since the total cost is 5 to 10¢ per day per animal, depending on body weight. The program also saves a substantial amount of labor as the animals do not have to be handled through a chute. No special equipment is required and conditioning feeds enable calves to get off to a good start without the hazard of serum shock. Conditioning feeds with Terramycin offers protection from 19 to 21 days, which is more than sufficient to cover the shipping danger period."

Pfizer scientists recommend that calves weighing up to 450 lb. be fed a daily ration of 2 lb. of supplement, containing 500 grams of Terramycin per ton, for either prevention or treatment. For calves weighing up to 750 lb., 4 lb. of supplement per day are recommended. Each pound of supplement contains ¼ gram of the antibiotic. Conditioning feeds may be used from three to five days before the calves are shipped or after they have arrived in the feedlot.

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FEED SALESMEN NEEDED FOR EASTern Indiana and central Ohio territories. Excellent opportunities with a progressive feed company offering top quality feeds competitively priced. Efficient service to our customers. Write Box 37, Cincinnati 32, Ohio.

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EXPERIENCED FEED SALESMAN FOR western Pennsylvania. Top notch man who enjoys strong dealer and feeder following wanted by manufacturer who has established business but no representative in the area. This could be a "once-in-a-lifetime" opportunity for the right man. Write in confidence to Ad No. 2164, Feedstuffs, Minneapolis 1, Minn.

WE NEED AN AGGRESSIVE FEED SUPplement salesman. You should be familiar with feed manufacturers, dealers and feeders in the Illinois, Missouri and southeastern Iowa area. Write giving us your background and experience. Interviews in the midwestern area in December. Address Ad No. 2191, Feedstuffs, Minneapolis 1, Minn.

FULL TIME, SIDELINE OR BROKERAGE representative. Unusual opportunity to build substantial business in Pennsylvania or New York State for experienced man that calls on wholesale and retail feed dealers. Drawing against liberal commissions. Give details of selling experience. Replies will be held confidential unless otherwise stated. Write: Dept. J, 521 S. 3rd St., Minneapolis 15, Minn.

Nutritionist—Research

Research group desires services of nutritionist, Ph.D. level or equivalent preferably with strong background and interest in swine nutrition. Please include pertinent data in reply. Address Ad No. 2168, Feedstuffs, Minneapolis 1, Minn.

WANTED: SALES ENGINEER

(Southern Half Indiana Exclusive)

Established manufacturer of feed processing equipment desires sales engineer with feed industry background to serve custom feed mills. Complete line of equipment, including mills, mixers, conveyors, etc. Reply, stating qualifications. All replies confidential. Address Box 2197, Feedstuffs, 141 W. Jackson Blvd., Chicago 4, Ill.

HELP WANTED

(Midwest Northeastern States)

Need two poultry Grower Contact men. New Jersey and Indiana territories. Not direct sales. Educational, advisory work for nationally known company (for 60 years). Salary, car, expenses. Excellent opportunity for recent Agricultural graduate, or young (up to 35) salesmen for agricultural products. Excellent pension, insurance plans and employee benefits. Address Ad No. 2177, Feedstuffs, Minneapolis 1, Minnesota.

H-E-L-P!

NEW MOTOR PRICES ARE UP 10% BUT!

YOU CAN BUY THESE REBUILT NEMA FRAME MOTORS—WITH NEW MOTOR GUARANTEE AND SAVE UP TO 50%

220/440 VOLT — 60 CYCLE — 3 PHASE

H.P.	OPEN TYPE R.P.M. 3600	R.P.M. 1800	R.P.M. 1200	H.P.	TOTALLY ENCLOSED R.P.M. 3600	R.P.M. 1800	R.P.M. 1200
1	$51.00	$49.00	$58.00	1	$56.00	$54.00	$64.00
1½	52.00	58.00	67.00	1½	57.00	64.00	74.00
2	64.00	67.00	75.00	2	70.00	85.00	98.00
3	74.00	75.00	89.00	3	101.00	104.00	125.00
5	85.00	89.00	112.00	5	112.00	125.00	159.00
7½	98.00	112.00	141.00	7½	134.00	159.00	206.00
10	122.00	141.00	168.00	10	170.00	206.00	234.00
15	162.00	168.00	222.00	15	226.00	234.00	316.00

Above prices effective 9/22/56—Prices subject to change without notice and subject to prior sale—Guaranteed one year.

YOU CAN'T AFFORD TO MISS THESE BARGAINS IN USED—PRE-NEMA MOTORS!

220 OR 440 VOLT — 60 CYCLE — 3 PHASE — OPEN TYPE

H.P.	R.P.M. 3600	R.P.M. 1800	R.P.M. 1200	H.P.	R.P.M. 3600	R.P.M. 1800	R.P.M. 1200
1	.....	$22.00	$27.00	20	.....	$89.00	$109.00
2	.....	27.00	34.00	25	.....	109.00	135.00
3	.....	34.00	39.00	30	$135.00	135.00	155.00
5	.....	39.00	.....	40	155.00	155.00	190.00
7½	.....	44.00	55.00	50	190.00	190.00	233.00
10	.....	55.00	67.00	60	233.00	233.00	350.00
15	.....	67.00	89.00	200	950.00	.....	.....

Above prices effective 9/22/56—Prices subject to change without notice and subject to prior sale—Guaranteed 30 days.

HAMMERMILLS

NEW—REBUILT (GUARANTEED)—USED (AS IS)

JAY BEE'S . . . JACOBSON'S . . . BLUE STREAK'S . . . PAPEC'S . . . KELLY-DUPLEXES . . . AND BAUER'S

Also, a complete line of JayBee and Bauer parts in stock

DUST COLLECTORS—YOU CAN'T BEAT THESE PRICES

New—42" .....$145.00 New—48" .....$173.00 New—60" $205.00

Many other bargains not listed. We might have what you need. Wire, phone or write us —Phone 2-4710. Prices subject to change without notice—Items subject to prior sale.

ALL PRICES F.O.B. LIMA, OHIO

The LIMA ARMATURE WORKS, Inc.

142 East Pearl St. Lima, Ohio

"Over 30 Years of Continuous Service to the Feed and Milling Industry."

DO YOU WANT TO SELL OR LEASE?

Perhaps you have thought about selling or leasing your feed business and have hesitated to make the initial move. Now you can start the ball rolling without fear of your intentions being noised around. Your reply and the information furnished will be treated with the utmost confidence.

We would appreciate knowing your location, sales volume, property description and a listing of allied items merchandised.

Please address your reply to Ad No. 2175, Feedstuffs, Minneapolis 1, Minn.

HELP WANTED

WANTED—MAN WITH EXPERIENCE IN the feed industry in management, nutrition work or top line sales. To work with established company selling complete line of commercial feeds and concentrates. Location in the Midwest within 150 miles of Chicago. Please state qualifications, salary range expected and personal data in first letter. Address Ad No. 2186, Feedstuffs, Minneapolis 1, Minn.

BAG SALESMAN

Wanted — experienced textile or multiwall bag salesman for southern half Kansas and southwestern Missouri. Excellent opportunity. Address Fulton Bag & Cotton Mills, P.O. Box 386, Kansas City, Kansas.

SITUATIONS WANTED

SWINE SPECIALIST, AVAILABLE AS herdsman-manager on research or experimental farm. Experienced. Address Ad No. 2141, Feedstuffs, Minneapolis 1, Minn.

NUTRITIONIST — Ph.D., 10 YEARS' EXperience in experimental feeding and feed processing. Wants position in aggressive feed company. Address Ad No. 2190, Feedstuffs, Minneapolis 1, Minn.

FEED AND SOY TRANSPORTATION DIrector, national multi-plant experience, BBA degree, ICC practitioner. Address Ad No. 2196, Feedstuffs, Minneapolis 1, Minn.

POULTRY GRADUATE DESIRES POSItion on West Coast. Technical and practical experience in poultry nutrition and management, sales experience. Dependable, capable and ambitious. Address Ad No. 2182, Feedstuffs, Minneapolis 1, Minn.

DESIRE TO LOCATE SOUTH WITH EStablished or new firm as production manager, or supervise production of formula feeds. Background of 23 years' experience in complete production, inventory and quality control know-how in livestock, swine and poultry feeds. Salary level of $7,200 necessary to meet present earnings. Address Ad No. 2149, Feedstuffs, Minneapolis 1, Minn.

WANTED TO BUY

WANTED TO BUY FEED MILL IN EASTern Iowa or northern Illinois capable of producing 10 to 20 tons per hour. Please give full particulars. Address Ad No. 2172, Feedstuffs, Minneapolis 1, Minn.

BABY CHICKS FOR SALE

BABY CHICKS—AS HATCHED OR SEXED —Five popular breeds and one hybrid. Quality - Quantity - Service. Wholesale prices. Milford Hatchery, Liberty Road, Randallstown, Md.

Use Feedstuffs WANT ADS for RESULTS

Your Own
PRIVATE LABEL DOG FOOD

CANNED • Horsemeat-Regular
BAKED • Dry-Meal-Kibbled

Complete production and packaging service for your own private brand of dog food. Add new products to your present brand line—or get into this fast-moving, profitable business without a heavy investment in raw materials, production facilities and packaging. Write today for full details without obligation.

WOODARD FOODS INC. 5009 Excelsior Blvd.
MINNEAPOLIS, MINNESOTA

Bryant
DOUBLE DUTY
HAMMERMILLS

Standard steel elevators, belt and bucket type, available from stock. Ten Heavy Duty sizes, from 300 to 10,000 Bu./Hr., for continuous service and four Light Duty sizes, from 110 to 750 Bu./Hr., for intermittent service. We also manufacture screw conveyors and hoppers. Send your requirements for complete information.

GODSHALK
Sheet Metal Fabricators
BANGOR, PA.

FHA Loans Possible For Some "Slow Pays"

SHERBURNE, N.Y. — Feed merchants troubled with slow-pay accounts involving considerable amounts of money may explore the possibilities of their farmer-debtors receiving Farmers Home Administration loans to refinance their past due obligations, according to a bulletin of the Eastern Federation of Feed Merchants, Inc.

The bulletin states that FHA changes authorized by the last Congress now make it possible for the agency to help straighten out efficient farmers who are in debt. FHA real estate loans can now be made strictly for refinancing purposes. The maximum loan is $35,000, the amount depending upon the equity and ability of the applicant to make payments.

Loans can be made only on "family type" farms. At the present the FHA is not refinancing debts of farmers whose major source of income is that of producing broilers or other meat birds.

Honeggers' Announces New Retail Outlets

FAIRBURY, ILL. — Officials of Honeggers' & Co., Inc., Fairbury, Ill., have announced that the following firms will handle its line of feed and allied products: Dixon (Ill.) Hatchery, owned by Clarence Paulsen; Lowell Jontz Feed Service, Buda, Ill.; Hansen Milling Co., Eagle, Wis., owned by Rolland Hansen; Reichert Milling Co., Freeburg, Ill., owned by Elmer W. Reichert; Roseville Store, Marble Rock, Iowa, owned by Lawrence Koenigsfeld; Frank's Feed Service, Grafton, Ohio, owned by Frank Michowka; and Catawissa (Pa.) Milling Co., owned by George Kern.

OFFICIAL DEFINITION

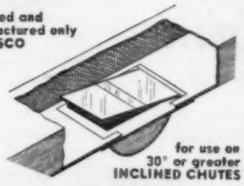
Feed Control Officials adopt tentative definition for ground corn cobs and dehydrated ground corn cobs. Paxco Dehydrated Corn Cob Meal meets definition requirements. Proven base for Iowa Economy Supplement. Superior molasses carrier. Write for Bulletin 610-3.

PAXTON PROCESSING CO., INC.
P. O. Box 120 Paxton, Illinois

Remove Dangerous Tramp Iron from Feeds the Modern Way with the

NEW

CESCO
Permanent Magnetic "Trailing Edge" PLATE



EFFICIENCY ADVANTAGES

1. Plate raised to an angle of 7½ degrees from floor of chute to provide 30% greater efficiency in removing fine ferrous particles.

2. Product sweeps particles to and under magnetic "Trailing edge" where they are held out of product flow.

3. 30% efficiency increase costs you no more than old style plate.

Use CESCO Flat Plates for chutes of less than 30° incline. Try Cesco Permanent Magnetic Ducts, Pulleys and Drums for complete all-around protection from Tramp Iron.

Write For Literature — CESCO — 4025 Sebastopol Hwy. Santa Rosa California

SOME VALUABLE SALES TERRITORIES AVAILABLE

Feed Shipments in Canada Show Gain

WINNIPEG—Canadian shipments of all types of prepared stock and poultry feeds were larger in August this year than they were a year ago. Latest Bureau of Statistics figures show primary or concentrated feeds increased to 25,113 tons from 21,280 a year ago, while secondary or complete feeds climbed to 176,267 tons from 147,555 and all other animal feeds to 48,108 tons from 47,384.

January-August shipments were also greater than a year earlier and were as follows: Primary or concentrated feeds, 208,766 tons compared with 172,691 a year ago; secondary or complete feeds, 1,352,260 tons compared with 1,133,073, and all other animal feeds, 379,155 tons compared with 343,795 in the January-August period a year ago.

Keep Water Available Year 'Round with a

Double jacket keeps water cooler in summer. Heat lamps or electric unit prevent freezing in winter. Capacity 82 gallons. Self-closing drink lids. Individual clean-out pans. Sturdy angle-iron base lags to platform. Write for FREE folder.

FARMER FEEDER
FT-82
HOG FOUNT

Makers of CHORE-BOY Milking Systems
FARMER FEEDER CO., Inc., Dept. F-4, Cambridge City, Indiana

Christmas Gift Suggestion

GIVE A SUBSCRIPTION TO

FEEDSTUFFS

• A WEEKLY NEWSPAPER •
FOR THE FEED MANUFACTURER, JOBBER, BROKER and DEALER

HOLIDAY RATES

One 1-year Gift	$ 4.00
Two 1-year Gifts	7.00
One 2-year Gift	$ 7.00
Two 2-year Gifts	12.00

Please enter the following Gift Subscriptions and announce each with FEEDSTUFFS' Christmas Card bearing my name:

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Name .....
Address .....
City ..... Zone ..... State .....
Gift Card to Read From: .....

FEEDSTUFFS 2501 WAYZATA BOULEVARD
P. O. Box 67, Minneapolis 1, Minn.

Retailer's Careless Attitudes Lead to Loss of Business

Careless merchandising habits are often acquired without the retailer being aware of how adversely they affect the customer.

A good example of carelessness in both personal handling of the customer and feed store appearance was recently described by E. G. Cherbonnier, feed advisor for the Grain & Feed Dealers National Assn. Here is a portion of Mr. Cherbonnier's description:

"The other day I went to the county seat to get some winter rye seed. It makes a fine early spring grazing crop in Missouri. The feed store I visited is owned by an elderly man of fine standing in the community. School board member for years, etc. I have dealt with him for about 10 years, but my visits are not frequent enough for him to be expected to recall my name at once.

"He was sampling some soybeans. 'Good morning,' I said, calling him by name. He grunted but didn't bother to look up. His lady bookkeeper said, 'It is a good morning, but we're not very civil this morning.' She said this over her shoulder and may have meant it for a rebuke to her boss. Maybe it was a warning to me not to expect any civility there. I couldn't tell.

"I stood and stood. The old gentleman (and I'm sure he is one outside of his store) crossed the office several times, within a few feet of me, but made it a point not to notice me.

"I looked around. In a corner, on the floor, 14 sacks, ½ full to nearly empty. The tops turned down, dust thick on them. Two cats were patrolling this corner. It was apparent that at times their duties were so demanding that they had no time to go outside for toilet facilities.

"A set of shelves held equally dusty books, including a set of the Harvard classics. Display stands were in disarray.

"The elevator man rushed in to say that in spite of a refusal of a box car for that morning, the railroad was spotting one. The lady reminded him that he should go out and thank the brakeman, which he did.

"By this time I was in the frame of mind of a researcher, more than a customer. I purposely stood where Mr. ——— would have to pass within a foot of me to get back to his testing. I had been there 20 minutes.

"Pass he did, but still not a glance. I gave up, did another errand and went home, as we had guests coming.

"When I reported it to my tenant, he said, 'I never go there any more.' 'Why?' says I. 'Because the damned place is so dirty and they act like they don't care whether you come in or not. I go to the Farm Bureau Service Co.'

"It shows that poor housekeeping can keep customers away and that even a good citizen, of high character, can gradually fall into careless manners at his store and leave the area wide open for a new competitor. The store where my tenant buys has been there only a short time. Did they decide to establish there because they recognized a vacuum of courtesy and service?

A Contrast

"The other errand I did that morning was at a nearby hardware store. Their monthly statement wasn't clear as to whether they had credited me with a returned item.

"Four farmers were in the store and there were two employees. One of them, although busy, called across the store, 'Hello, Mr. Cherbonnier, look around, I'll be over soon.' Thinks I, 'Gosh, I'm important. They know me right away.' So I look around and select $3.45 of odds and ends by the time the salesman is through with the people ahead of me.

"For 20 years I've known that trading center. No other hardware store has set up in competition with this concern."

W. P. Hays

PROMOTED—W. P. Hays, who has been assistant director of Chow advertising of the Ralston Purina Co., St. Louis, since 1951, has been appointed advertising manager of the company's Ralston division, it was announced by Geoffrey Baker, Ralston vice president. Mr. Hays, a 1922 graduate of the University of Missouri, joined the company in 1925, after serving three years on the faculty of the University of Missouri college of agriculture. In 1932, he became business manager of the advertising department. Mr. Hays will have advertising responsibility for all the company's cereal and grocery products. He will assume his new duties on Dec. 1.

A FEW DISTRIBUTOR TERRITORIES STILL OPEN
FOR OUR NEW PREMIUM GOLDEN BOW BALER TWINE

9,000 feet per bale guaranteed strong—clean—burless | **Daybag Importers** | A premium twine at a popular price!

WRITE, WIRE OR CALL HEmlock 7877, 322 S. Patterson Blvd., Dayton 2, Ohio

NO. 1 IN A SERIES FOR FEED DEALERS *why it's better to have Archer working for you*

1. CREATIVE RESEARCH 2. Extensive Field Service 3. Complete Feed Line
4. Superior Ingredients 5. Archer-Dealer "Partnership"

A New Idea in Cattle Feeding...
developed by Archer Research

"TWO-PHASE FEEDING," Archer's new concept in cattle feeding, opened the door to more feed sales for hundreds of Archer dealers.

It started in Archer's RESEARCH CENTER. A few years back, when beef prices balanced on a fine point between profit and loss, feeders were looking for an answer. Archer offered new hope through their dealers that made sense to feeders—a new plan, *Archer Two-Phase feeding.* In the first phase, Archer Lin-Mo-Lass, a roughage-boosting feed produced top, corn-type gains from fibrous rough feeds. Then, in phase two, a powerful finishing feed—Archer Beef Fattener—was used to make corn work harder . . . to build beef faster.

Feeders switched to the Archer Two-Phase plan and put more roughage to work to build beef . . . *saving $3 to $5 per hundred pounds of gain.* Some said that next to Stilbestrol, Archer Two-Phase Feeding was the most important development in modern cattle feeding.

Two-Phase feeding and other creative developments from Archer Research are paying off for Archer Dealers. Another reason why you'll sell more feed, make *more money* as an Archer Booster Feed Dealer. Write today for full details.

Archer BOOSTER FEED
Super-treated with BOOSTRYN
ARCHER-DANIELS-MIDLAND CO.
Feed sales offices: Minneapolis, Minnesota—Springfield, Illinois—Kansas City, Missouri

ARCHER BOOSTER FEEDS Boost Sales • Boost Growth • Boost Profit

KAFIR & MILO
Largest Dealers in Southwest
MID-CONTINENT GRAIN CO.
Kansas City, Mo.

FEED GRAIN PRICES

(Continued from page 1)

corn or in the conservation reserve, or in a combination of the two.

Under the acreage reserve program of the soil bank, a farmer is authorized to obtain a payment of 90¢ bu. times average yields for the amount of land taken out of corn production.

Favors Base Acreage Plan

These provisions should mean that the referendum vote will go heavily for the base acreage program. If farmers vote for the old acreage allotment plan, they will receive an over-all allotment of only 37-million-odd acres and they may obtain between 75 and 90% of parity. This week Mr. Benson decided that they would obtain only 77% of parity under this program, and on the basis of their 37-million-acre allotment, they would find it difficult to gain any compensation.

The 1957 corn plans, as farmers face the referendum, mean clearly that USDA wants to persuade the corn farmer in the Corn Belt to go for the soil bank program.

This policy should not be unknown to Feedstuffs readers, since it has been repeatedly stated that UDSA would take feed grain prices down to levels after election where the deficit areas would have access to feed supplies at price levels in line with the sales price of the end products.

However, it is astonishing that the officials moved as abruptly as they did knocking down the price support level for 1957-crop corn.

The market effect of this decision is certain to confirm this publication's previous indications of lower corn prices from CCC bin sites, through a more liberal sales policy, and again a lower price for the big basic feed grain.

The feed industry should look at the new soil bank program for corn as it is now analyzed by top USDA experts and form their own conclusions.

Here is the textbook on corn alternatives which is used at USDA:

Outlined here are the details of the two alternatives available to farmers under the referendum for corn in the commercial area. Described first are factors in the allotment program:

1. Acreage limitation. Acreage allotments under the AAA act of 1938 would be determined for 1957 and subsequent years except in national emergencies. Acreage allotments for the commercial corn area are that acreage, which would produce a normal supply of corn, based on five year average yields, and adjusted for abnormal weather together with carryover, estimated production outside commercial areas and imports.

2. The price support level for the old AAA acreage allotment program will be 77% of parity or $1.36 a bushel; the USDA discretionary support would be between 75-90% of parity support if the farmers decided to advocate the acreage allotment plan of the AAA act of 1938 instead of the new soil bank program.

3. As for non-compliers in the programs, USDA is silent but leaves the door open for another year when they may support the non-compliers in the corn belt at some level of guaranteed support—but at no level higher than the price support for compliers.

4. Acreage reserve payments—payment for each acre by which farmers reduce their acreage below corn acreage allotments to the extent that the acreage representing such reduction is placed in the acreage reserve. Farmers must comply with allotments for all other commodities—except that a farmer may produce 15 acres of wheat or one acre of peanuts.

5. Duration of the program. Acreage allotments would be effective for every year except in national emergencies. Price support pursuant to the farm law of 1949 would also be effective every year.

6. The effect of price support levels for other feed grains in 1957. For 1957, unless price support is made available to non-cooperators in the commercial area, corn produced in the non-commercial corn area would be supported at 75% of the support level of support to the cooperators in the commercial corn area, and price support for oats, rye, barley and grain sorghums would be discretionary. For 1957, if price support is made available to non-cooperators in the commercial area, and corn produced outside the commercial area and oats, barley, rye, and grain sorghums would be supported at not less than 70% of parity. After 1957, corn produced outside the commercial corn area would be supported at 75% of parity of the level of support to cooperators in the commercial areas and the price support for oats, barley, rye and grain sorghums would be discretionary.

7. The allotment program is definitely a cross compliance program between crops. Here is the USDA analysis of that phase of the deal: Farmers must comply under the acreage allotment program with acreage allotment for corn and other commodities.

Here is the other choice now facing corn belt farmers in the referendum on Dec. 11:

1. Acreage limitations. In lieu of acreage allotments, base acreages would be determined each year for which an acreage reserve program is in effect. The base acreage for the commercial area each year through 1959 would be 51 million acres.

2. The level of price support for that acreage would be that which would assist farmers to market corn in the normal channels of trade and commerce but not to encourage uneconomic production. As stated above, the level of support under this aspect of the program is known to be $1.31 per bushel.

3. Under the soil bank base acreage allotment plan farmers must not exceed their corn base acreage and place a certain percent of their corn base acreage in the acreage reserve program or in the conservation reserve program, or in a combination of the two.

4. For non-cooperators, price supports may be determined at the discretion of the Secretary.

5. Acreage reserve payments. Now known as $1.31 per bushel of the price support level for the 1957 corn crop, or in terms of acres, ninety cents per bushel times average yield for the local acreage. To obtain such payments, the farmer must reduce his corn acreage below his corn base acreage to the extent that this reduction is placed in the acreage reserve. Farmers must comply with all allotments except in the case of wheat where a farmer may produce 15 acres and in the case of peanuts, one acre.

6. Corn base acreage would be determined for each year during the acreage reserve program of the soil bank, 1957-58-59.

7. If the soil bank phase of the corn referendum is adopted, here is what it will mean in terms of price support levels for other feed grains: Unless price supports are available for non-cooperators in the commercial area, corn produced in the non-commercial area would be supported at 82½% of the support level for cooperators in the commercial area. Price support for oats, barley, rye, and grain sorghums would be supported at a discretionary level.

For 1957, if price support is made available for the non-cooperators in the commercial area, corn produced outside the commercial area and oats, barley, rye and grain sorghums would be supported at not less than 70% of parity.

After 1957, as long as corn base acreages are in effect, corn produced outside the commercial corn area would be supported at 82½% of the support level to cooperators and price supports for oats, barley, rye and grain sorghums would be discretionary.

8. Farmers under acreage limitations on corn will be required to comply with acreage allotments on corn and other commodities to obtain soil bank participation.

Replies to G&FDNA Bu.-vs.-Cwt. Survey

In the table below, (F) indicates those favoring the proposal, (O) indicates those opposed, and (N) means those who are neutral or perhaps "don't care."

Areas: These areas were chosen arbitrarily, merely to give some geographical division of replies.
Area I—Maine, New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, New York, Pennsylvania, New Jersey, Delaware.
Area II—Maryland, Virginia, West Virginia, North Carolina, South Carolina, Tennessee, Louisiana, Alabama, Georgia, Florida.
Area III—Illinois, Kentucky, Indiana, Ohio, Michigan, Wisconsin.
Area IV—Missouri, Kansas, Colorado, New Mexico, Oklahoma, Arkansas, Texas.
Area V—Iowa, Minnesota, Nebraska, South Dakota, North Dakota, Eastern Montana, Wyoming.
Area VI—Arizona, California, Nevada, Utah.
Area VII—Oregon, Washington, Idaho, Western Montana.
General—Includes those firms which are nation-wide in trading, or which seem equally two or more of the above areas.

Areas	Country Elevators			Flour Mills			Commission Merchants			Terminal Elevators			Brokers-Jobbers			Soybean Processors			Feed Mills			Feed Retailers			Others		
	F	O	N	F	O	N	F	O	N	F	O	N	F	O	N	F	O	N	F	O	N	F	O	N	F	O	N
I	1	0	0	1	0	0	0	0	1	3	2	1	0	0	0	7	1	0	5	0	0	1	0	0			
II	4	0	0	0	0	0	1	0	0	5	2	0	0	1	0	9	1	0	3	0	0	0	0	0			
III	23	14	3	2	0	1	3	3	0	5	5	1	4	2	1	2	1	0	13	5	3	8	5	1	4	0	0
IV	26	11	4	2	2	0	3	2	1	7	8	1	6	1	0	0	0	0	17	6	2	10	4	0	3	0	0
V	31	13	0	1	0	0	2	10	1	4	1	0	4	2	1	1	1	0	18	3	0	17	6	0	2	0	0
VI	6	0	0	0	0	0	0	0	0	4	0	0	9	0	0	0	0	0	8	0	0	5	0	0	3	0	0
VII	13	8	4	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	5	2	2	3	3	2	0	0	0
General	3	8	0	2	6	0	1	9	0	1	8	0	4	8	2	1	0	0	3	7	1	1	6	0	2	0	0
Totals	107	54	11	9	9	2	10	24	3	23	23	4	35	17	5	4	3	0	80	25	8	52	24	3	15	0	0

Some of the replies we received were without indication of the business category, or without some other information that would warrant classification.

CWT. SURVEY

(Continued from page 1)

a very high percentage for such surveys. This, the association noted, indicates the strong interest in this question in the trade. Many of the forms were accompanied by letters with strongly worded arguments for or against the proposed change.

A few replies in addition to those in the final tabulation have been coming in, but they are not expected to change the general figures.

Details of the survey findings by areas and types of grain and feed operations are shown in the accompanying table.

Feed Trade Favors It

In general, it will be noted that feed manufacturers and dealers, brokers and jobbers, and country elevator operators show considerable sentiment in favor of the change. In this connection, it may be observed that there has been a good deal of feed industry interest in the proposed change, and the purchasing agents committee of the American Feed Manufacturers Assn. has been spearheading a drive to have the change made.

Among the commission merchants replying to the survey, a majority opposed the proposed change. Flour millers, terminal elevator operators and soybean processors were about evenly divided on the question.

The G&FDNA, in releasing the report on the survey results, pointed out that it does not take sides on this matter. At the association's recent convention, the resolutions committee recommended, and the membership approved, the suggestion that the contract markets be asked to make primary recommendations on the proposal, and that until these contract markets had expressed themselves, it would be virtually academic for the rest of the trade to make any decision. Since convention time, one contract market has so expressed its opinion—opposed to the proposed change.

The survey forms received by G&FDNA will be submitted to the U.S. Department of Agriculture with a request that USDA officials interpret the questions-and-answers of the whole survey. USDA, it is pointed out, is conducting its own survey on the same question.

In connection with this latest report, G&FDNA pointed out that there was an error in the figures given in a preliminary tabulation released two weeks ago. (Feedstuffs, Nov. 3) Commission merchants were listed at that time as being 16 for and 15 against the change. The count should have read 6 for and 15 against.

BUYS FEED OPERATION

NORTH BRANCH, MINN. — The North Branch (Minn.) Milling Co. has been purchased by Burt R. Peterson, former operator of the Cambridge (Minn.) Feed Mill.

Glidden Co. Reports Income, Profits Up

CLEVELAND—Net sales for the 12 months which ended Aug. 31 were $226,290,387 and net profits were $8,147,737, or $3.55 per share, it was announced in the Glidden Co.'s 39th annual report. Net sales and earnings for the previous year were $180,524,822 and $7,112,567, respectively.

Each of the company's five divisions, including the chemurgy division, operated profitably. Chemurgy division profits were at their highest level since 1951. While soybean processing margins showed some improvement over those for the previous three years, they still leave much to be desired, the report stated. Early in the year margins were good, but in April and May, a fear that there might be a shortage of soybeans at the end of the crop year advanced prices for soybeans out of proportion to the prices received for soybean meal and oil.

The report continued: "While earnings of this (chemurgy) division can be materially affected by processing margins it has been our policy to develop products from meal and oil which would eliminate total dependence upon primary processing margins as a source of income.

"Our new $6 million terminal elevator, on the Calumet River in Chicago, is in operation. With a capacity of 6.5 million bushels, this elevator has already established itself as a very efficient, high handling-capacity grain operation. In addition, it is also proving of value to our commodity hedging activities. Two smaller elevators, with a capacity of 200,000 bu. each, have recently been completed at Lockport and Seneca on the Illinois River. They will serve as 'feeders' to the terminal elevator in Chicago.

"The operation of our flaxseed and soybean processing plant at Buena Park, Cal., was permanently discontinued this summer. At best a marginal operation, its shutdown has released some $2.5 million working capital for more profitable investment elsewhere.

"On the basis of the present outlook, we anticipate continued improvement in division operations during 1957."

THE FEED MARKETS

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Demand — Supply — Trends — Prices

Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

A AND D FEEDING OIL

Chicago: Demand fair; supply plentiful.; straight A feeding oil with 10,000 units vitamin A per gram 7½@9¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

New York: Trend steady; price per lb. in 55 gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½ @20¢, 3,000 A 19½@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢, 3,000 A 20@21½¢; f.o.b. Massachusetts, New York or Pennsylvania.

Boston: Demand fair; supply adequate; 600 D, 1,500 A 18¢ lb.; 300 D, 2,250 A 20¢; 300 D, 1,500 A 17¢; 300 D, 750 A 15½¢.

Minneapolis: 10,000 A 38¢ lb.; 300 D, 2,250 A 21½¢ lb.; 300 D, 1,500 A 19½¢ lb.; 300 D, 750 A 17½¢ lb.

ALFALFA MEAL

Chicago: Demand slow; supply tight; 17% dehydrated, with 100,000 units vitamin A guaranteed $66@66.50; 17% with no A guaranteed $60; 13% suncured $51.

New Orleans: Demand slow; trend steady to stronger; supply limited; 17% dehydrated vitamin A guaranteed $69@71; pelleted $66@69, non-guaranteed $62@64, 15% $66@68.

Portland: Demand slow; supply ample; trend unchanged to higher; 15% suncured, Idaho $45, delivered Portland; 15% suncured $45, f.o.b. California; dehydrated $55, f.o.b. California.

Boston: Demand good; supply spotty; dehydrated 17% $76; suncured 13% $55.90, nominal.

Minneapolis: Quotations on bulk material held about unchanged, but the range on sacked meal was extended $1 higher. Quotations: 17% dehydrated, 100,000 units of vitamin A guaranteed $66.25@68.25, granules and oil treated $65.25@66.25, bulk; 18% 125,000 units of vitamin A guaranteed $71.25, granules and oil treated $69.25, bulk.

St. Louis: Demand fair; trend firm; supply limited; dehydrated 17%, 100,000 A $64.50 ton; suncured No. 1 fine ground, 13% $50.50 ton, f.o.b. St. Louis.

Memphis: Demand poor; trend higher; supply limited; dehydrated 17% protein, guaranteed 100,000 units vitamin A $67.

Kansas City: Demand fair to good with some occasional new interest reported by blenders; trend steady to higher with probable advance indicated for next week; supply tight generally with supplies in Omaha a little more plentiful; 17% protein dehydrated alfalfa meal with 100,000 units vitamin A guaranteed on arriva, $62@62.50, sacked; 18% protein 125,000 units A $65.50; 100,300 A pellets $56@58.50, bulk; non-guaranteed A meal $54.50@55; suncured, demand slow, No. 1 fine ground $45@46, sacked; No. 1 ¼-in. $42.50@43.50; No. 2 ¼-in. $41.50.

Ft. Worth: Demand good; supply limited; California origin meal or pellets, truck $65, delivered Ft. Worth; suncured: South Dakota No. 1 13% protein, ¼-in. grind, rail shipment, $52 prompt; Colorado No. 1 $52, delivered Ft. Worth, truck.

Cincinnati: Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $71.15@73.65; 17% dehydrated, no A $66.15@68.15.

Philadelphia: Demand dull; supply light; 17% dehydrated $76.

Los Angeles: Demand and trend steady; supply scarce on dehydrated, moderate offers on suncured; 15% suncured $43; 17% dehydrated $55@56.

Buffalo: Demand and supply fair; trend steady to higher; $74, sacked, Boston.

ANIMAL FATS (STABILIZED)

Kansas City: Demand fair; trend steady; supply ample; prime tallow 7¼@7¾¢; bleachable fancy yellow 7½@7¾¢ lb.

Ft. Worth: Demand good; supply sufficient; prime tallow, tank cars 7¾¢ lb.; drums 9½¢ lb., f.o.b. north Texas packing plants, with returnable drums.

Louisville: Demand fair to good; trend firm; supply ample; bleachable white 7¾¢ lb.; white tallow 7¾¢ lb.; yellow grease 6¼¢ lb.

Chicago: Demand good; supply short; bleachable fancy tallow, tank trucks or carlots, 7¾¢ lb.; yellow grease 6¾¢.

San Francisco: Demand fair; supply ample; bleachable fancy 7¾¢ lb.; yellow grease 6¾¢ lb.

Los Angeles: Demand fair; trend steady; supply ample; bleachable fancy tallow 7¢; yellow grease 6¼¢.

BARLEY FEED

Milwaukee: Demand good; supply fair; needles $1.05@1.15; ground $25 ton.

San Francisco: Demand fair; supply ample; rolled $65, ground $64.

Chicago: Demand good; supply light; $43.

Baltimore: Demand good; supply light; $52.50.

Boston: Demand slow; supply plentiful; pulverized $51.75.

New Orleans: Demand fair; trend firm; supply adequate; pulverized $52@54.

Ogden: Supply average; rolled $54@59; whole barley $47@52.

Portland: Demand good; supply ample; trend unchanged; rolled $60, ground $58.

Los Angeles: Demand fair; trend steady; supply ample; standard rolled $3.40, standard ground $3.36.

Philadelphia: Demand dull; supply fair; pulverized $49.50.

BENTONITE (SODIUM)

Chicago: Demand very good; supply adequate; f.o.b. Wyoming and South Dakota shipping points: granular 30 mesh $15.50; fine granular, 80 to 100 mesh $12.75; powder, 200 mesh $12.50; f.o.b. Belle Fourche, S.D., minimum 30-ton carlot: 80 granular $12.50 net; 200 mesh fine $12.25 net.

BLOOD FLOUR

Louisville: Demand slow; trend steady; supply good; $80@85.

BLOOD MEAL

San Francisco: Demand slow; supply ample; $5 a unit of ammonia.

Chicago: Demand fair; supply adequate; $100@120 ton, guaranteed 80% protein.

New Orleans: Demand slow; supply ample; trend steady; $90@95.

Louisville: Demand slow; trend steady; supply good; $80@85.

Cincinnati: Demand fair; trend steady; supply adequate; $115.

Los Angeles: Demand fair; trend steady; supply ample; $5 a unit of ammonia.

Ogden: Supply normal; $97.50 ton in 100-lb. bags, f.o.b. Ogden.

Portland: Demand slow; supply ample; trend unchanged; $95.

BONE MEAL (STEAMED)

Los Angeles: Demand fair; trend steady; supply ample; domestic $89.50.

Cincinnati: Demand fair; trend steady; supply adequate; $75 ton, sacked, f.o.b. Cincinnati.

Ft. Worth: Demand fair; supply adequate; $85 sacked, f.o.b. Ft. Worth, local manufacture.

Louisville: Demand poor; trend firm; supply normal; $75@80.

St. Louis: Demand good; trend steady; supply adequate; $90@95 ton, sacked.

Boston: Demand and supply steady; $80.

Portland: Demand good; supply ample; trend unchanged; import $90.

Chicago: Demand slow; supply adequate; $60@75.

San Francisco: Demand good; supply ample; $82.50.

Buffalo: Demand good; trend steady; supply slightly easier; $85 ton, sacked.

New Orleans: Demand fair; trend steady; supply adequate; $80@85, ex-dock, New Orleans.

BREWERS DRIED GRAINS

Chicago: Demand slow; supply light; 26% $56.50@57.

New Orleans: Demand fair; trend steady; supply adequate; 26% $60@62.

Ft. Worth: Demand fair; offerings scarce; 26% $63.10, delivered Ft. Worth, November.

Buffalo: Demand and supply fair; trend steady to lower; $57.50, bulk, Boston.

Milwaukee: Demand good; supply fair; $57, Milwaukee.

St. Louis: Demand good; trend higher; supply ample; $47 ton bulk, $52 ton sacked.

Boston: Demand active; supply tight; 26% $63.75@64.50.

Louisville: Demand good; trend steady; supply ample; $58 ton.

Philadelphia: Demand dull; supply light; $63.

Los Angeles: Demand fair; trend steady; supply ample; $55 sacked, $48 bulk, f.o.b. Van Nuys.

Cincinnati: Demand fair; trend steady; supply somewhat limited; $62.50.

BREWERS DRIED YEAST

Los Angeles: Demand good; trend steady; supply ample; 9¢, 5 tons or over.

Buffalo: Demand good; trend firmer; supply limited; $10.75 cwt.

Portland: Demand slow; supply ample; trend unchanged; 13¢.

Boston: Demand and supply good; 11¢ lb.

Louisville: Demand slow; trend steady; supply normal to heavy; 10¢ lb.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11½¢.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11½¢.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢; ton lots 11½¢.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

St. Louis: Demand fair; supply adequate; 10¢ lb. in carlots; 10½¢ lb. in 5-ton lots; 11¢ lb. in ton lots; 11½@12¢ lb. in less than ton lots.

Milwaukee: Demand good; supply limited; 10¾@11½¢ lb. in carlots; 10¾@12½¢ lb., l.c.l.

Chicago: Demand good; supply limited; 10@11½¢ lb. in carlots; 10¾@12½¢ l.c.l.

San Francisco: Demand fair; supply good; 10¢ lb.

BUTTERMILK-CONDENSED

Chicago: Demand fair; supply adequate; $3.25@3.50 cwt. in carlots.

San Francisco: Demand fair; supply good; $5 cwt.

New Orleans: Demand fair; trend steady; supply ample; $4.75@5.

Ogden: Supply average; $4.90, 100-lb. drum.

Portland: Demand good; supply ample; trend unchanged; $4.75.

Los Angeles: Demand fair; trend steady; supply ample; 100-lb. drums $5.50; large barrels $4.75.

Philadelphia: Demand dull; supply fair; $4.25, barrels.

Louisville: Demand slow; trend steady; supply normal; $4.25 cwt.

Boston: Demand fair; supply light; $3.75 cwt.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight and tax)

New York: Crystals $13.97, flour $9.72.
Buffalo: Crystals $14.74, flour $10.47.
Toledo: Crystals $16.39, flour $12.14.
Boston: Crystals $15.18, flour $10.93.
Limecrest, N.J.: Crystals $9.75, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9.

Los Angeles: Demand fair; trend steady; supply ample; meal and flour $10.53 ton, carloads; grits $13.03 ton, carloads.

Minneapolis: Plain $11; iodized (½ lb. KI per ton) $14.45; iodized manganesed $15.90, in 100-lb. bags.

Chicago: Plain $8.90 ton in 100-lb. bags, delivered.

CHARCOAL

Los Angeles: Demand good; trend steady; supply limited; poultry charcoal, oak, 40-lb. bags $176 in ton lots.

Boston: Demand and supply light; $95.

Chicago: Demand quiet; supply limited; poultry charcoal $102 ton in 50-lb. multiwalls.

San Francisco: Demand steady; supply ample; $54.50.

COCONUT MEAL

Portland: Demand slow; supply limited; trend unchanged; $72.

Los Angeles: Demand limited; supply adequate; trend steady; cake, ex-dock, spot $71.50@72.

San Francisco: Demand fair; supply ample; solvent $66, expeller $71.

COD LIVER OIL (FORTIFIED)

Boston: Demand slow; supply ample; 600 D, 2,250 A 22¢ lb.; 300 D, 2,250 A 21¢; 300 D, 1,500 A 18½¢.

New York: Trend steady; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 16½@19¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 600 ICU, 1,500 A 18@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢, f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Los Angeles: Demand good; trend steady; supply limited; 4¢.

New Orleans: Demand fair; trend steady; supply light; 50% solids, menhaden $79@81.

New York: Demand good; trend steady; supply limited; 4@4½¢ lb., f.o.b. eastern shore.

Boston: Demand good; supply adequate; 4¢ lb.

CORN GERM MEAL

St. Louis: Demand slow; trend steady; supply adequate; $43 ton bulk, $48 ton in burlap sacks.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $51.08, meal $71.08.
Atlanta: Feed $60.69, meal $80.49.
Birmingham: Feed $58.74, meal $78.74.
Boston: Feed $57.61, meal $77.60.
Chicago: Feed $47, meal $67.
Cleveland: Feed $54.31, meal $74.31.
Denver: Feed $56.37, meal $76.37.
Ft. Worth: Feed $54.93, meal $74.93.
Indianapolis: Feed $51.74, meal $71.74.
Kansas City: Feed $47, meal $67.
Louisville: Feed $51.30, meal $71.39.
New Orleans: Feed $56.27, meal $76.27.
New York: Feed $57.20, meal $77.20.
Norfolk: Feed $56.37, meal $76.37.
Philadelphia: Feed $56.78, meal $76.78.
Pittsburgh: Feed $54.93, meal $74.73.
St. Louis: Feed $47, meal $67.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $50@50.75.

Louisville: Demand slow; trend stronger; supply normal; $55.10.

COTTONSEED OIL MEAL

Kansas City: Demand normal; trend higher; old process supplies plentiful., solvent scarce; $55, sacked, Memphis, solvent, for December with hardly any November available; $57.50@58.50 for old process.

New Orleans: Demand fair; trend steady; supply adequate; 41% old process $76@78.

Portland: Demand good; supply ample; trend unchanged; $64, f.o.b. Los Angeles.

Ogden: Supply normal; 41% $68@73.

Ft. Worth: Demand steady; offerings immediate shipment light; carlots, 41% old process $61@62, f.o.b. central Texas mills; solvent 41% low gossypol $66, delivered Ft. Worth; pellets $2 additional; cottonseed hulls $31.50@32, delivered Ft. Worth.

Wichita: Demand slow; supply sufficient; 41% old process $67; solvent $66@67.

Los Angeles: Demand good; trend steady; supply moderate; $63, local.

Philadelphia: Demand dull; supply fair; $73.

Cincinnati: Demand fair; trend steady; supply adequate; solvent $66.50; old process $69.50.

Chicago: Demand slow; supply tight; hydraulic $67.50@68; solvent $67@67.50.

Buffalo: Demand poor; trend steady; supply fair; $74.50, sacked, Boston.

San Francisco: Demand good; supply ample; $68.50.

Louisville: Demand fair; trend steady; supply ample; $64.75 old process; no activity in new process meal.

Boston: Demand spotty; supply adequate; $72.50@74.

Atlanta: Demand good; trend steady; supply limited; 41% $60, sacked, immediate.

Memphis: Demand good; trend steady to higher; supply tight; prime 41% protein, old process $57.50, sacked; new process, 41% solvent $57, sacked.

D ACTIVATED ANIMAL STEROL, POWDERED

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢; 3,000 ICU 18¢, warehouse.

Kansas City: Demand and supply normal; trend steady; 10½@11¢ lb.

New York: Trend steady; price per lb. in 50- and 100-lb. bags or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis, Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL, POWDERED

Chicago: Demand good; supply adequate; 4,000,000 U.S.P. units per lb., 15¢ lb.; ton lots and less 17¢; 12,000,000 units per lb., 5 tons to a carload 28¢ lb.; ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Tupelo, Miss.: $49.50.
Houston: 19% $69.50.
Wales, Tenn.: $64.10.
Coronet, Fla.: Minimum phosphorus 17%, minimum calcium 34%, maximum fluorine .17% $58 net ton, f.o.b. Coronet in 100-lb. multiwall bags, $55 in bulk.

DICALCIUM PHOSPHATE

Minneapolis: 18.5% phosphorus, 24% calcium granular or fine ground $89.06 ton, delivered; $3 ton less in bulk.

Trenton, Mich.: Minimum phosphorus 21%, maximum fluorine .01% guaranteed $90.30, f.o.b. Trenton, in 100-lb. multiwall bags; minimum phosphorus 18½%, maximum fluorine .01% guaranteed $79.55, f.o.b. Trenton in 100-lb. multiwall bags.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $79.55 ton, f.o.b. Columbia, in 100-lb. multiwall bags. Freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Portland: Demand slow; supply ample; trend unchanged; $100.

Cincinnati: 18% phosphorus $88@89.

Chicago: Demand fair; supplies adequate; stock food grade, 18.5% phosphorus, 20,000 lb. or more $79.55 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn., less than 20,000 lb. $89.55; 21% phosphorus, 20,000 lb. or more $90.30, basis Chicago Heights and Nashville, less than 20,000 lb. $100.30; freight equalized with St. Louis, Trenton, Mich., and Godwin, Tenn.; bulk boxcars or hoppers, $3 net ton less than bagged baterial.

Bonnie, Fla.: Demand improving; supply adequate; minimum phosphorus 18½%, granular $79.55; freight equalized with closest dicalcium phosphate producing point, carload basis.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; $54, solubles $80.

Buffalo: Demand fair; trend steady; supply poor; $65, bulk, Boston.

Boston: Demand active; supply fair; domestic light $68, dark $70, nominal.

Louisville: Demand good; trend steady; supply light; bourbon, light $56.50, dark $57.50, solubles $77.

Philadelphia: Demand dull; supply light; $68.50.

Cincinnati: Demand fair; trend steady; supply somewhat limited; $58.75@61.

DRIED BEET PULP

Los Angeles: Demand good, active; trend steady; limited offers; $58.50, paper bags.

Cincinnati: Demand fair; trend steady; supply adequate; $60@62.

Milwaukee: Demand and supply fair; molasses $57, plain $57.

Atlanta: Demand fair; trend steady; supply limited; $72.50 ton, sacked, immediate.

Boston: Demand slow; supply fair; $65.

Ft. Worth: Demand slow; supply moderate; carlots, 50-lb. papers $65@66, delivered Ft. Worth, November-December shipment.

Ogden: Supply average; $45@50 ton.

New Orleans: Demand fair; trend steady; supply adequate; $56@57.

San Francisco: Demand good; supply fair; $51.80.

DRIED BUTTERMILK

Chicago: Demand fair; supply adequate; medium acid $8.25@8.75; sweet cream $8.75@9.25 cwt., in carlots.

Milwaukee: Demand fair; supply fair; $10.75.

San Francisco: Demand fair; supply ample; 11¢ lb.

Boston: Demand and supply fair; 11¢ lb.

Louisville: Demand fair; trend firm; supply normal; 9½@10¢ lb.

Minneapolis: Market unchanged at $8.50@9.50 cwt.

Buffalo: Demand good; trend firmer; supply limited; $8.85 cwt.

Ft. Worth: Demand very slow; supply light; local production $12 cwt., f.o.b. Ft. Worth.

Wichita: Demand slow; supply adequate; $8.25 cwt.

Ogden: Supply average; $7.25, 100-lb. bag.

New Orleans: Demand fair; supply adequate; trend stronger; $9.50@10 cwt.

Los Angeles: Demand fair; trend steady; supply ample; 11¢.

DRIED CITRUS PULP

Los Angeles: Demand active; trend firm; supply scarce; f.o.b. southern California producers' plants: orange $50.50 sacked, $45.50 bulk.

Boston: Demand slow; supply adequate; $56.43.

Atlanta: Demand good for pulp, fair for meal; supplies ample; trend steady; pulp $43, meal $38, sacked, immediate.

New Orleans: Demand good; supply adequate; trend steady; $43@45.50.

Buffalo: Demand and supply fair; trend steady; $36, sacked, f.o.b. Florida points.

San Francisco: Demand good; supply fair; meal $55.

DRIED SKIM MILK

Chicago: Demand fair; supply adequate; $10.50@11 cwt. in carlots.

Milwaukee: Demand and supply fair; $11.75.

San Francisco: Demand and supply fair; 12½¢ lb.

Minneapolis: Market steady at $10.50@11 cwt.

Buffalo: Demand fair; trend steady; supply ample; $10.65 cwt.

Portland: Demand good; supply ample; trend unchanged; 12½¢.

Louisville: Demand fair; trend steady; supply ample; 11@12¢ lb.

Boston: Demand poor; supply adequate; 11½@12¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 11@12½¢ lb.

Cincinnati: Demand fair; trend steady; supply adequate; 11@12¢.

Los Angeles: Demand fair; trend steady; supply ample; $13.75.

Philadelphia: Demand dull; supply fair; $11.50.

DRIED WHEY

Philadelphia: Demand dull; supply fair; $6 cwt.

Los Angeles: Demand fair; trend steady; supply ample; plants $5.55; f.o.b. Los Angeles warehouses $6.10.

Cincinnati: Demand fair; trend steady; supply adequate; $5.25 cwt.

Kansas City: Demand fair; trend steady; supply normal; straight grade $6.25 cwt.,

delivered or $5.25, f.o.b. plant plus freight, whichever is lower; partially delactosed $6.40.

Ogden: Supply normal; $6.90, 100-lb. bag.

New Orleans: Demand fair; trend steady; supply adequate; $6.10@6.50 cwt.

Ft. Worth: Demand fair; supply adequate; carlots, standard $6.25 cwt., sacked, delivered Ft. Worth or any Texas point or in ton lots, f.o.b. warehouse, Ft. Worth.

Portland: Demand good; supply ample; trend unchanged; $4.95.

Boston: Demand slow; supply plentiful; $5.85 cwt.

Louisville: Demand fair; trend firm; supply normal; 6@6½¢ lb.

Minneapolis: Market held at $5@5.50 cwt.

Buffalo: Demand and supply fair; trend steady; $6 cwt.

Chicago: Demand steady; supply adequate; $5.45 cwt. in carlots.

San Francisco: Demand steady; supply good; $5.50 cwt.

FEATHER MEAL (HYDROLYZED)

Boston: Demand steady; supply adequate; $80, f.o.b. Maine shipping points.

FISH MEAL

Milwaukee: Demand and supply fair; 60% $160.

Chicago: Demand fair; supply short; eastern menhaden fish meal, 60% protein $141@144; western blended, 60% protein $129; Gulf $141@144; Northwest herring-salmon blend $129; Canadian herring, 73% protein $2 a unit of protein, all f.o.b. producing points; 60% blended $150, delivered Midwest points.

San Francisco: Demand fair; supply ample; $2.22½ a unit of protein.

Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $171@173.

Buffalo: Demand good; trend steady; supply limited; 60% protein, menhaden $148 ton bulk, $152 sacked.

Minneapolis: Market held at $2 a unit of protein, West Coast for 70% meal and $150, delivered, for 60%.

Atlanta: Demand fair; trend strong; supply limited; 60% $151, sacked, immediate, nominal.

Louisville: Demand slow; trend steady; supply ample; $150@155 ton.

Boston: Demand good; supply irregular; $139@140.

Ft. Worth: Demand improved; supply light on pilchard, adequate on others; 63% South African pilchard with solubles $143; Norwegian herring fullmeal with solubles $164.50, f.o.b. Houston; 60% menhaden meal $139.50, f.o.b. Port Arthur.

Portland: Demand slow; supply ample; trend unchanged; $2, f.o.b. Vancouver; $2.25, f.o.b. California.

New Orleans: Demand light; supply limited, Gulf fishing poor; trend steady; 60% menhaden $140 burlaps, scrap $136.

Cincinnati: Demand fair; trend steady; supply adequate; $145@155.

Los Angeles: Demand good; scarce offers; trend stronger; $2.15 a unit of protein.

HAY

Ft. Worth: Demand good; supply fairly plentiful; carlots, baled, No. 1 alfalfa $43@46, No. 2 $41@44; prairie No. 2 $37@39; Johnson grass, nominal, No. 2 $34@36, delivered TCP on 50% drouth freight rate.

Portland: Demand slow; supply ample; trend unchanged; $35.

Ogden: Supply normal; $1.10 bale; $21@24 ton in the barn.

Wichita: Demand slow; supply very light; prairie $30, alfalfa $35.

New Orleans: Demand poor; supply adequate; trend stronger; baled alfalfa, No. 1 $64@65; Kansas prairie $46@49; No. 1 timothy $50@52; timothy and clover mixed $64@68.

St. Louis: Demand good; trend higher; supply adequate; alfalfa, first and second cutting $16@18 ton; alfalfa, third and fourth cutting $20@25 ton; prairie $37.50@38 ton; timothy and clover mixed $26@28 ton; wheat straw $14@16 ton, St. Louis.

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Boston: Demand and supply steady; No. 2 timothy $36@38.

Louisville: Demand slow; trend steady; supply good; fancy alfalfa $30 ton; all varieties, clover, timothy, alfalfa or mixed clover and timothy $25 for No. 1, with No. 2 at $23; straw $20.

Los Angeles: Demand good for better grade and limited offers; slow on lower grade; trend steady; heavy offers; U.S. No. 1 $31@33; U.S. No. 2, leafy $28@30; U.S. No. 2, green $27@28; U.S. No. 2 $25@26.

Cincinnati: Demand slow; trend steady; supply adequate; No. 1 clover and timothy mixed hay $25; new straw $22.

Philadelphia: Demand dull; supply fair; $28.

HOMINY FEED

New Orleans: Demand fair; trend steady; supply plentiful; $48@54.50.

Kansas City: Demand good; trend higher; supply tight; white or yellow $45.50@46.50, bulk, Kansas City, $3 higher for sacks, for nearby; December higher.

Cincinnati: Demand fair; trend steady; supply adequate; $50.

Louisville: Demand fair; trend easy; supply normal; $48.20.

Boston: Demand slow; supply ample; $57.

Memphis: Demand nil; trend lower; supply ample; white $51.50, yellow $52.

Milwaukee: Demand good; supply tight; $51.50, sacked, Milwaukee.

Buffalo: Demand and supply fair; trend steady to higher; $54.50, bulk, Boston.

Chicago: Demand fair; supply adequate; $47@47.50.

LINSEED OIL MEAL

Chicago: Demand fair; supply adequate; solvent $63.50@64; expeller $73.50@74.

Milwaukee: Demand good; supply fair; old process $73.75; new process $63.75.

San Francisco: Demand and supply fair; $74.50.

Portland: Demand good; trend higher; supply tight; $70, f.o.b. Los Angeles.

Wichita: Demand slow; supply sufficient; 34% $69.

Kansas City: Demand light; trend steady to higher; supply normal; new process $53.50@54, bulk, Minneapolis.

Minneapolis: Prices firmed up about $1 ton this week, with interest fair and shipping directions good. Quotations: 34% $53.50@54.50, bulk, Minneapolis; 22% flaxseed screenings oil feed $31.50, bulk, Minneapolis.

Boston: Demand slow; supply light; old process $76, nominal.

Louisville: Demand fair; trend stronger; supply reasonable; old process $80.60 ton, new process $71.10 ton.

Ft. Worth: Demand slow; supply adequate; carlots, 34% or better, November-January $77.05, delivered Ft. Worth; pellets $2.50 premium.

New Orleans: Demand poor; supply adequate; trend steady; $75.50@76 on 32% or higher protein.

Cincinnati: Demand fair; trend steady; supply adequate; new process $69@69.50; old process $79@79.50.

Los Angeles: Demand moderate; trend weaker; supply scarce; $73@74, resale.

Philadelphia: Demand dull; supply fair; $74.50.

MALT SPROUTS

New Orleans: Demand slow; trend steady to easier; supply adequate; $49@54.50.

Cincinnati: Demand fair; trend steady; supply adequate; No. 1 $54.

St. Louis: Demand good; trend steady; supply adequate; No. 1 bulk $43 ton, No. 2 sacked $48 ton, No. 2 bulk $41 ton.

Milwaukee: Demand good; supply fair; oddweights $48; evenweights $50.

Chicago: Demand slow; supply adequate; No. 1 $48@48.50.

MEAT SCRAPS

Chicago: Demand slow; supply adequate; 50% protein $65@75; 55% $78.

San Francisco: Demand fair; supply ample; $1.55 a unit of protein.

Portland: Demand slow; supply ample; trend unchanged; $1.50 a unit.

Buffalo: Demand just fair; trend lower; supply ample; 50% meat scraps $70 ton, bulk; $72, sacked.

New Orleans: Demand fair; trend steady to weaker; supply ample; 50% $82@85.

Ogden: Supply normal; $82.50 ton, in 100-lb. bags.

Kansas City: Demand fair; trend steady; supply adequate; 50% meat and bone scrap $70@75, sacked.

Ft. Worth: Demand fair; supply ample; meat and bone, 50% $66@70, f.o.b. or delivered Ft. Worth.

Wichita: Demand fair; supply moderate; 50% $80, f.o.b. plant; 55%, no quotations, no offerings.

Los Angeles: Demand less active; trend steady; increased offers; $1.60@1.65 a unit of protein.

Cincinnati: Demand slow; trend steady; supply adequate; 50% $72@75 ton, sacked, f.o.b. Cincinnati.

St. Louis: Demand slow; trend steady; supply ample; 50% $73@75 ton bulk, $78@80 ton in paper sacks, $77@79 ton in burlap sacks.

Boston: Demand cautious; supply plentiful; $1.15 a protein unit; converted 50% $70.

Louisville: Demand fair; trend firm; supply ample; $75@80.

New York: Demand fair; trend steady; supply good; 50% $70, 55% $75, bulk; 50% $73, 55% $78, sacked.

St. Paul: Market steady to easier at $70 for 50% meat and bone scraps.

MILLET

St. Louis: Demand fair; trend higher; supply scarce; recleaned Early Fortune $4.40 cwt., sacked; recleaned White Proso $4.50 cwt., sacked.

MILLFEED

Minneapolis: Inquiry improved toward the end of the week as cold weather and snow arrived, and this coupled with restricted production boosted bran and middlings prices $1@2 ton. Heavier feeds were off seasonally. Quotations: bran $42@43.50, standard midds. $43@43.50, flour midds. $47@48, red dog $49.50@51.

Kansas City: Demand spasmodic; supply plentiful; bran and middlings worked higher last week with shorts holding steady; bran advanced $2.50@3 with middlings up $1. Quotations Nov. 14: bran $37.50@38.25, shorts $39.25@39.75, middlings $38.50@39.50, bulk, Kansas City; bran $41.50@42, shorts $40.50@41.50, sacked, Kansas City.

Ft. Worth: Demand good for bran, fair for shorts; trend firm; supply of bran scarce, shorts sufficient; carlots, burlaps, prompt, wheat $49@50; gray shorts $49@50, delivered Texas common points; $3 higher on bran and 50¢ lower on shorts compared with previous week.

Wichita: Demand fair, bran in stronger demand than shorts; supply sufficient; basis Kansas City Nov. 13: bran $41@41.50, shorts $41@41.50; bran advanced $2.75 ton, while shorts were unchanged, compared with the previous week.

Chicago: Bran and middlings values increased slightly during the week ending Nov. 14, which indicated that pressure in released from this market because of greater consumption in the Southwest. Running time by flour mills also was said to be down a trifle. Demand was only fair. Quotations: bran $45@45.50, standard midds. $46.50@47, flour midds. $54.50@55, red dog $56.50@59.

St. Louis: Demand fair; trend steady to firm; supplies adequate; bran $46.25@46.75, shorts $45.25@45.75, St. Louis switching limits.

Cincinnati: Demand fair; trend steady; supply adequate; bran $48.50@50; middlings $51.50@52.

Memphis: Demand poor; trend lower; supply ample; wheat bran $48.50, gray shorts $48.50, standard midds. $48.50.

Louisville: Demand better; supply ample; trend stronger; bran $51.75, mixed feed $52.25, shorts $51.75, middlings $53.75.

Buffalo: Demand for millfeeds was slow. Both bran and middlings were below western levels. Bran and middlings ended $1 lower. Heavy feeds were easy and off $2.50. Quotations Nov. 14: bran $46.50@48, standard midds. $48@49.50, flour midds. $55.50@58, red dog $55.50@58.

New York: Demand good; trend steady; supply fair; bran $54.50@55, standard midds. $56@56.50.

Boston: Demand spotty; supply adequate; bran $53, middlings $56.

Philadelphia: Demand dull; supply ample; bran $53, standard midds. $56, red dog $67.

New Orleans: Demand fair; trend firm; supply ample; bran $51@52.50; shorts $51@52.50.

Portland: Demand slow; supply ample; trend unchanged; $41.

Ogden: Supply normal; to Utah and Idaho: red bran and mill run $44, middlings $49; to Denver: red bran and mill run $51, middlings $56; to California: red bran and mill run $51.50, middlings $56.50, f.o.b. San Francisco and Los Angeles.

San Francisco: Demand fair; supply ample; $52; red bran $57.

Los Angeles: Demand good; trend stronger; light offers; mill run, Utah-Idaho billing, sacked $53; red bran, delivered CCP, sacked $56.50@57.

MINERAL FEED

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Ogden: Supply normal; $106.50 ton in 50-lb. blocks; $96.50 ton, granular, 50-lb. bags.

Sioux City: 50-lb. mineral blocks, 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Ft. Worth: Demand fair; supply ample; all-purpose granules $88, block $93, mineral phosphorus 6%, granules $104, block $109; cattle sheep mineral 7% phosphorus granules $97, block $102; hog mineral phosphorus 3½% granules $87, phosphorus 2% $76 (all in 50-lb. paper bags).

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $95; 100-lb. bags $90, f.o.b. plant.

Portland: Demand good; supply ample; trend unchanged; $42.

MOLASSES

Cincinnati: Demand fair; trend higher; supply adequate; 26½¢ gal., New Orleans.

Los Angeles: Demand good; trend steady; supply ample; $35, f.o.b. tank cars; $35.25, f.o.b. tank trucks, both Los Angeles harbor.

Kansas City: Demand good; trend higher; both molasses and tank cars for shipping are tight; 26@26¾¢ gal. for immediate only.

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with some November being sold at 27¢; December price quoted at 27¼¢ with January at even more.

Minneapolis: Market unchanged from last week, with some trade sources feeling a top may have been reached for the present. Quotations: 26½@27¢ gal., f.o.b. New Orleans.

Seattle: $35 ton, tank cars.

Memphis: Demand poor; trend steady; supply limited; blackstrap 26¢ gal., tank car, f.o.b. New Orleans.

Atlanta: Citrus molasses—demand good; supply limited; trend strong; $25 ton, bulk, f.o.b. Florida producing points, immediate.

Boston: Demand seasonal; supply adequate; 25½¢ gal. in tank cars.

Louisville: Demand fair; trend strong; supply ample; 26¢ gal., tank car lots, f.o.b. Gulf ports.

New York: Demand good; trend steady; supply limited; blackstrap 25¢ gal., tank cars, tank wagons, f.o.b. New York.

Ft. Worth: Demand good; supply very scarce; blackstrap 27¢ gal., f.o.b. Houston; delivered Ft. Worth trucks $53.87; seller's market price on date of shipment.

New Orleans: Demand fair; trend higher; supply light; 25¢ gal. in tank cars, f.o.b. New Orleans; 600-lb. steel drums $18@18.50.

Milwaukee: Demand and supply fair; blackstrap 24¢ gal., f.o.b. New Orleans.

Buffalo: Demand good; trend steady; supply poor; 25½¢ gal., f.o.b. Albany.

San Francisco: Demand and supply good; $35 ton, f.o.b. cars, Richmond, Cal.

NIACIN

New York: Trend steady; $3 kilo, 50-kilo lots; $3.10 kilo, 10-kilo lots; $3.20 kilo, 5- and 2½-kilo lots; $3.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Chicago: Demand fair; supply adequate; reground oat feed $20; fine ground feeding oatmeal $78@80; feeding rolled oats $88@90.

Portland: Demand slow; supply ample; trend unchanged; rolled $65, ground $62, cleaned $66.

Philadelphia: Demand dull; supplies fair to light; pulverized white oats $53; Canadian oat feed $28, domestic $23.

Minneapolis: Market about unchanged; sales moderate but directions improved. Quotations: feeding rolled oats $85@92, standard pulverized $48@50.50, feeding oatmeal $72, crimped oats $65, reground oatfeed $20@22.

Memphis: Demand fair; trend higher; supply limited; 3½% protein, reground oat feed $27.85.

St. Louis: Demand fair; trend steady; supply ample; reground oat feed $19.50 in 100-lb. burlap sacks; pulverized white oats $45 ton, choice $46.

Boston: Demand steady; supply adequate; white pulverized $50.75; fancy $57.65; ground mixed $45.75; reground oat feed $19.75.

Louisville: Demand fair; trend strong; supply ample; reground $27.25, rolled oats $95.75, feeding meal $85.75, pulverized white oats $52.25, crimped white oats $75.75.

Ft. Worth: Demand fair; supply scarce for immediate delivery; oat millfeed $51.40, reground oat millfeed $32.40.

New Orleans: Demand fair; trend firm; supply scarce for immediate; steam crimped $79@81; pulverized $55@57; mixed feed oats $45@47.

Los Angeles: Demand fair; trend steady; supply ample; white pulverized $70.

Cincinnati: Demand fair; trend steady; supply adequate; reground oats $25; pulverized white oats $51.50@53.50; rolled oats $95.

OYSTER SHELL

Cincinnati: Demand fair; trend steady; supply adequate; $21.75.

Los Angeles: Demand and trend steady; supply ample; local $18.35, eastern $25.

Portland: Demand good; supply ample; trend unchanged; western $30, eastern $36; granite grits $26.50, crystal grits $26.50.

New Orleans: Demand fair; trend steady; supply ample; $15@18.25 local origin.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Boston: Demand and supply steady; $23.21 in paper.

Louisville: Demand good; trend firm; supply ample; in 80-lb. bags $21.34, 50's $21.54, 25's $21.84.

PEANUT OIL MEAL

Milwaukee: Demand and supply fair; 26% $47.

PEAT MOSS

Chicago: Demand good; supply short; $3.75@3.85 standard 7½ cu. ft. bale.

San Francisco: Demand fair; supply ample; $3.35 bale.

Portland: Demand slow; supply ample; trend unchanged; $3.15.

Boston: Demand and supply steady; $3@3.10 bale.

Los Angeles: Demand and trend steady; supply ample; Canadian, 6.1 cu. ft. bales $3.45 in 300-bale lots, delivered California main line points.

Philadelphia: Demand and supply fair; $2.95, f.o.b. pier.

POTASSIUM IODIDE, U.S.P.

St. Louis: Demand fair; trend steady; supply ample; 100% pure potassium, U.S.P., 250-lb. average in drums $1.90, 100-lb. lots in fiber drums $1.92; 90% potassium iodide calcium stearate mixture, 225-lb. lots in leverpak drums $1.81, 100-lb. lots in fiber drums $1.81.

New York: Trend steady; granular or crystals $1.80½ lb. in 250-lb. drums, $1.92 lb. in 100-lb. drums, $1.95 lb. in 25-lb. drums; 90% KI in calcium stearate or carbonate mixtures, $1.81 lb. in 250-lb. drums or 200-lb. lots, $1.83 lb. in 100-lb. drums, $1.96 lb. in 25-lb. drums; f.o.b. New York, New Jersey or Pennsylvania; freight allowed to destination on 100-lb. drums or larger packings.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gram in 3.36 to 16 gm./lb. mixtures, freight prepaid or paid to destination.

RICE BY-PRODUCTS

Los Angeles: Demand good; trend steady; supply ample; bran $50.61.

Ft. Worth: Demand slow; supply moderate; carlots, rice bran $36@37, prompt shipment, f.o.b. south Texas rice mills; hulls $4@5, f.o.b. mills.

Atlanta: Demand fair; trend steady; supply limited; bran $44, sacked, immediate.

New Orleans: Demand fair; trend steady; supply adequate; $44@45 on bran; no quotes on hulls.

San Francisco: Demand fair; supply ample; bran $44, polish $48.

SCREENINGS

Minneapolis: The market is firmer because of limited offerings. Quotations: country run $18@25, lights $10@20, mediums $20@30, heavies $30@40; Canadian $16, bulk, Duluth; Canadian ground $26, sacked; flax screenings $20@25.

Buffalo: Demand and supply fair; trend steady to higher; ground, sacked $27.75, New York, L&R; unground, bulk $22.50, New York.

Chicago: Demand fair; supply plentiful; ground grain screenings $28; Canadian, bulk $20.

Ft. Worth: Demand fair; supply limited for immediate shipment; 12% protein ground $38.50, sacked, delivered Ft. Worth.

New Orleans: Demand slow; trend higher; supply limited; 3/64-in. grind $38.70@40.70.

New Orleans: Demand fair; trend steady; supply adequate; Canadian $26; barley $26@28.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $18.85@19.10.
Buffalo: $23.65@23.90.
Chicago: $23.10@23.35.
Cincinnati: $21.80@22.
Des Moines: $23.60@23.85.
Kansas City: $23.20@23.45.
Memphis: $20.50@20.70.
Minneapolis: $24.25@25.55.
Philadelphia: $22.65@22.90.
St. Louis: $22.50@22.75.
Tampa: $18@18.20.
Toronto: $27.50@27.80.

SORGHUMS

Cincinnati: Demand fair; trend steady; supply adequate; $2.85@2.90.

Los Angeles: Demand fair; trend steady; supply ample; No. 2 milo, delivered CCP, prompt $3.

Ft. Worth: Demand fair; supply sufficient; carlots, bulk, No. 2 yellow milo $2.47@2.50, delivered Texas common points.

SOYBEAN OIL MEAL

Kansas City: Demand and supply fair; trend higher; $47@47.50, bulk, Decatur, for meal for Kansas City and western shipment; $48.50 for unrestricted.

Ft. Worth: Demand fair; supply sufficient; carlots, 44% $67.20@73.50, depending on origin, immediate, also November-December; truckloads $63.50.

Wichita: Demand good; supply sufficient; 44% $64, 50% $72, f.o.b. Wichita.

Ogden: Supply normal; $85@90.

Portland: Demand good; trend higher; supply ample; November $43.50; January forward $45@46.

Minneapolis: Market about unchanged at $44.50@45, bulk, Decatur.

Memphis: Demand fair; trend steady; supply ample; prime 44% solvent $54, sacked, f.o.b. Memphis.

Atlanta: Demand fair; trend steady; supply ample; 44% $65.75, sacked, immediate.

Chicago: A tense international situation boosted soybean prices this week, and soybean meal values also showed an increase during the period ending Nov. 14. Demand was fair. Quotations: 44% soybean oil meal $58@58.50.

Louisville: Demand fair; trend stronger; supply ample; $59.60 ton.

Boston: Demand good; supply adequate; $47.

New Orleans: Demand light; trend higher; supply adequate; 49% sacked $69@71.50.

Philadelphia: Demand dull; supply ample; $47, bulk, Decatur.

Milwaukee: Demand good; supply fair; $47, bulk, Decatur.

Decatur: Demand fair; supply good; 44% bulk, unrestricted $48@48.50.

San Francisco: Demand fair; supply ample; $77.25.

SUNFLOWER SEED

St. Louis: Demand fair; trend firm; supply ample; large black $15.50 cwt., medium black $14 cwt., small black $10.50 cwt.; large gray $16 cwt., medium gray $14.50 cwt., small gray $10.50 cwt.

TANKAGE

Chicago: Demand slow; supply adequate; 60% protein $70@78.

Wichita: Demand fair; supply ample; 60% $80, f.o.b. plant.

Ft. Worth: Demand and supply light; 60% digester $74@76, f.o.b. Ft. Worth.

Kansas City: Demand and supply balancing each other; 60% digester $73@75.50, sacked.

St. Louis: Demand fair; trend steady; supply ample; 60% $80@83 ton bulk, $85@88 ton in paper sacks, $84@87 ton in burlap sacks.

Louisville: Demand improving; trend steady; supply ample; $75@80.

St. Paul: Market softer, with quotations down to $67 for 60% digester.

New Orleans: Demand fair; trend steady; supply ample; 60% $83@85.

Los Angeles: Demand fair; trend steady; supply ample; $1.45 a unit of protein.

Cincinnati: Demand fair; trend steady; supply adequate; 60% digester $75@77.50.

WHEAT GERM MEAL

New Orleans: Demand fair; trend steady to lower; supply adequate; $66@68, cottons.

Buffalo: Demand fair; trend steady; supply poor; commercial grade $68, sacked, f.o.b. Buffalo.

Chicago: Market off $2 ton to $62, with interest improved at the lower levels.

CANADA

(Continued from page 1)

Commons, which gave official support to the investigation. The latest step came recently when he presented a formal memorandum to the Committee on Western Grain Standards meeting in Winnipeg. That group, comprised of senior trade and producer representatives, added its sanction to the investigation and also unofficially supported the change.

Mr. Baxter said the prime concern of the investigating body is that all parties, particularly the farm groups, be fully informed and discuss the question. This is considered essential if the move is to have widespread support, which is considered necessary if the change is to be made.

Strong Support Expected

Mr. Baxter went on to say that he feels the factors in favor of the change are so definite that if properly presented, the support will be almost unanimous.

In his report to the Committee on Western Grain Standards, Mr. Baxter said his group feels that the bushel as a unit of measure is cumbersome and out-of-date, of no real use in determining the value of grain, and unwieldy and time and labor-consuming in recording and processing commercial grain transactions. In varying degrees, he said, this has been or is being considered both individually and collectively by grain handling cooperatives, elevator, feed and flour milling groups, the Canadian Wheat Board and others.

"The main points in favor of the change," Mr. Baxter explained, "are that the elimination of the numerous conversion calculations, from pounds to bushels and bushels to pounds, involved as the grain moves forward from the farm to final market, and the simplification of the remaining calculations achieved by having all grains on a uniform and convenient decimal basis should render substantial savings in all of the many clerical operations."

Mr. Baxter cited various examples of present conversion calculations which could be eliminated, and he mentioned various groups which could benefit.

At the same time, he noted certain disadvantages—such as the time needed to adjust thinking to the change, changes in record keeping, etc.—but it was thought that these would ultimately disappear.

HATCHERY OUTPUT

(Continued from page 1)

A daily market report issued by the Federal-State Market News Service in Atlanta showed that the farm price of broilers in north Georgia on Nov. 13 was about 17¢, after going below 15¢ lb. earlier. In the Delmarva area, prices were mostly around 18½@19¢ lb. In a number of other areas, prices on the same date were around 16½@17¢ lb. In northwest Arkansas early this week, prices of 19@20¢ lb. were noted.

Chicks produced otner than for broiler production totaled about 17.3 million in October, up 4% from a year earlier. For the first 10 months of the year, output was up 7%.

The number of non-broiler eggs in incubators on Nov. 1 was 1% larger than a year earlier. Increases were shown for the New England, south Atlantic, west south central and mountain regions, with decreases elsewhere.

Heavy breed poult production in October totaled 396,000, compared with 189,000 in October last year. Of the total produced, 89% were of the heavy white breeds, which may be marketed at light weights.

A relatively large November hatch of heavy breed poults also was indicated. The number of heavy breed eggs in incubators on Nov. 1 was 1,166,000, compared with 660,000 a year earlier. Of the heavy breed eggs in incubators, 78% were of the heavy white type.

Light breed poults hatched during October totaled 311,000, or 2% more than a year earlier. This represented the first time in 1956 that a monthly light breed hatch figure has exceeded the total for the corresponding month of 1955. For the first 10 months of the year, the light breed hatch was off 11% from a year earlier. The number of light breed eggs in incubators on Nov. 1 totaled 840,000, compared with 741,000 a year earlier, indicating another increase.

Meanwhile, the National Turkey Federation pointed out in a recent report that figures on testings of breeders for pullorum disease indicate great interest in early market turkeys for the coming season. A substantial increase in early testings of heavy breed turkeys was noted.

Early turkeys were the most profitable in 1956, and a large early crop in 1957 is now indicated.

Spencer Kellogg's Earnings Higher

BUFFALO—Spencer Kellogg & Sons, Inc., reported its earnings in the fiscal year ended Aug. 25 increased sharply to $1,170,523, equal to 96¢ a share from $326,149, or 27¢ a share, in the preceding year. Sales in the latest year rose to $92,747,319 from $90,345,041 a year earlier.

Howard Kellogg, Jr., president, said conditions in the industry this year were much better than last year. He added that the outlook for the company is encouraging. Large crop estimates should keep prices from rising beyond the reach of broad demand. Mr. Kellogg said the over-capacity that has hindered the industry for several years has finally been compensated for by increased demand.

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Safety in the Milling Plant

● By Ernest W. Fair

Few safety programs overlook the importance of the individual employee's actions on the job. Few ignore the need for training in proper action and motion by the employee. Far too many ignore the importance of applying safety to the equipment as well.

No piece of equipment is fool proof or accident proof. Some may have greater accident potential than others but all possess it to a degree. The safety program of the mill should therefore call for close attention to application of safety with respect to the equipment therein.

Here are presented a number of accident areas which deserve such attention. Overlooking even one can nullify all the work and effort expended on the program.

Wherever there are dangerous moving parts these should be enclosed. There should be no exceptions. Many units in the plant have such guards or enclosures as integral parts of the machinery itself but others do not. It should always be a rule that where there are moving parts some sort of substantial guard must be erected.

No such guarding or equipment placement should ever be made which will make it difficult for employees to reach parts subject to wear, adjustment and hand lubrication. All should be conveniently accessible. In some cases it will even be profitable to go to the expense of moving such units to assure this requirement is present. In others, redesign of guards or housing may provide the safe accessibility. A particular point to look for is the situation where accessories have been added which create such a condition.

Added safety can be obtained where old equipment is still in use by installation thereon of automatic and continuous lubrication systems which permit oiling while the machine is in operation. This is a feature of most modern equipment. Oiling systems are available or can easily be devised in the plant shop for the older units. This will eliminate a very prevalent cause of accidents—injuries to employees sustained while lubricating machinery in motion.

Driving mechanisms always require close examination during any safety inspection. These, too, are a frequent source of accidents. Such driving mechanisms built close to the floor must always be enclosed or shielded by heavy guards. Some plants have found it worth while to move them off floors and out of reach. Others find, in some spots, it pays to convert machines to individual drives in order to eliminate this hazard.

Another big cause of accidents in many plants has been the existence of a condition of sharp contrast between light and shadow and glare in the vicinity of the point of operation of a machine. Shadows conceal danger. Heavy contrast between light and shadow makes it difficult for the worker to see what he is doing and maintain adequate alertness.

Where any such condition is found it can usually be remedied at very little cost. One method is to install proper fixtures around such areas which do away with these shadows and provide uniform lighting around the equipment and in work areas where employees use each such piece of equipment. Another is to use paint to provide color contrast as well as kill out shadow effects.

Injuries are naturally often sustained by workers reaching into or about equipment for materials in the process of feeding or extracting from the unit. Where this is done by hand, provision of a mechanical means of doing so will always lessen the accident hazard. Provision of additional free space around such a unit in order to give the employee more room in which to maneuver is another method.

Dust and Gases

Long range hazards in the form of dust and gases should also be taken into consideration. The ill effect from these is not always readily apparent and shows up only after a considerable period of time. They are as much of an accident hazard as an unguarded high-speed machine. Where they do exist in the plant the easiest and best method of doing away with them is to provide automatic suction blowers and a duct system to carry such damaging fumes or gases outside and away from the work areas.

Noise is some times a contributing factor to accidents in the plant. Wherever it exists in excessive volume it serves to decrease the alertness of employees and increase their nervous tension. Any employee, under these two extremes of stress, is a potential accident victim no matter how well trained in safety he may be.

Reduction of such extreme noises is always possible through the erection of sound proofing partitions around such equipment, damping of the unit itself in and around its foundation and by other well known methods. The important factor is that noise as a contributing cause of accidents is generally overlooked. It should be placed high on the list in every plant and where accident prevention methods are being planned the elimination of unnecessary noise should be near the top of the list.

Excessive Vibration

Excessive vibration has the same effect. This usually results from lack of good maintenance on equipment. It should never be overlooked as a contributor to accidents in any plant.

Many accident surveys have pointed up another frequently overlooked mechanical cause of accidents. This involves machine motion itself. Any machine motion that is tiring to the eyes of the worker should be avoided as where reciprocating or revolving parts are viewed through cross screens or latticework.

Added safety can also be secured around moving parts of equipment that cannot be enclosed by smoothing the contour of such equipment. Wherever exterior shapes of any parts of the machines that require frequent handling exist they should be set up to facilitate convenience in handling.

Many accidents are caused by employees tripping or falling into machinery. These can be avoided by enclosure of such parts of the machine or by providing guard rails which will catch the individual and give him the needed second or two to regain his balance. Such a hazard exists frequently where units are crowded too closely together and there is no room for one to regain his balance should something happen. In some instances this type of accident has been reduced in such areas through compulsory routing of traffic of employees along other aisles in the plant and making the area virtually "off limits" to all but the men whose jobs keep them therein.

Machine safety in the plant should also be impressed upon the maintenance men therein, for maintenance men who are safety conscious can do more toward spotting and removing conditions of danger than any other single individual.

Soybean Unit to Meet

CHICAGO—The Soybean Research Council, serving the National Soybean Processors Assn., will meet in Chicago Nov. 28 at the Congress Hotel.

The council, which is made up of 14 representatives from as many processors in the soybean industry, will consider, among other matters, a program of research having to do with industrial utilization of soybean products.

ADM President Says Research Holds Key To Firm's Growth

BOSTON—Research holds the promise of ever-increasing diversification for the Archer-Daniels-Midland Co., Minneapolis, Thomas L. Daniels, president, told a group of Boston securities analysts.

"Research has been the pace setter for our firm for 20 years and has resulted in the development of hundreds of new products currently used by every segment of industry," Mr. Daniels said.

In the past year, Mr. Daniels continued, the company has increased its exploratory research budget by 36%. The company is spending four times as much on research today as it was just seven years ago, he added.

ADM is one of the nation's largest processors of agricultural commodities. Recently the firm has extended its reseach to non-agricultural materials.

Although the company has developed and marketed a number of new industrial chemicals—its chemical sales grew from $7,655,000 in 1941 to $39,473,000 last year—the firm has no intention of becoming solely a chemical producer, Mr. Daniels said.

"We have too many other profitable product lines which are extremely promising. Among these are our industrial cereals and soy specialty products. We also place a high value on the earnings of our grain division and our divisions which supply the food industry because they help make us 'depression proof.'"

The ADM president pointed out that the company's earnings have increased more than 50% in the past three years.

Mr. Daniels said ADM is now the largest flaxseed crusher, largest producer of foundry oils and binders, one of the largest soybean processors, one of the largest flour millers and a leader in production of animal feeds, industrial cereals, fats and oils, basic industrial chemicals and dehydrated alfalfa. The firm has 148 plants and elevators in the U.S. and Canada and sells its products in 51 foreign countries.

Recently a development department was established to seek additional avenues of expansion.

As examples of the company's expansion in the past two years, Mr. Daniels cited the purchase of the resin division of U.S. Industrial Chemicals, a newly-built chemical plant at Ashtabula, Ohio, the new river barge terminal at St. Paul, Minn., and purchase of a one-half interest in Applied Radiation Corp.

Abroad the firm is building a whaling station in Peru, and a feed plant in Mexico City, both in cooperation with local interests in those countries, and has formed a new subsidiary to expand its fats and oils business in western Europe.

Protein Oil Meal Prices Up Sharply

MEMPHIS, TENN. — Protein oil meal prices moved up sharply on the Memphis Board of Trade last week.

Unsettled conditions in Europe and the Middle East reportedly contributed to the increases. A flurry of short covering also helped drive prices upward with light offerings on the advance.

Higher soybean prices during the week influenced oil meals to move forward. Sharpest gains of the week were posted on Nov. 9. There was some short covering, hedging and trade buying during the week.

Feed business was reported as ranging from spotted to average for this time of the year.

Unrestricted soybean oil meal closed the week on Nov. 14 unchanged to $1 ton higher. Eastern Trunk Line soybean oil meal was 25¢ to $1 ton higher.

Grain Men to Appear At Railroad Hearings

BUFFALO — Buffalo grain interests are preparing testimony to submit this month when the Interstate Commerce Commission starts a series of hearings on the railroads' request for higher demurrage rates.

The proposed increase, which was scheduled to start Sept. 1, was suspended until March, pending results of protests from all over the nation.

The Buffalo Corn Exchange of Buffalo and the Trunk Line Grain and Grain Products Traffic Council will be among the groups sending representatives to Washington for the first hearing.

MARKETS

(Continued from page 2)

possibly even at a little higher level than last week. A pickup in the broiler feed business accompanied the advance in broiler prices to 20¢ in the Waco area. Broiler prices weakened to 18½@19¢ the end of the week, however, as replacements continued at a high rate. A further spurt in cattle feed business of all kinds was experienced. A real cold snap, with sub-freezing temperatures, was said to have helped stimulate this business.

The drouth feed operations in virtually all of Texas continued at a good pace. Recent rains were enough to germinate grains, and there is now some oats grazing. More rain, spaced properly, could lead to some very good winter grazing, it is said. Laying mash moved in good volume this week, too. Mills generally were operating two shifts five days this week and perhaps were a little busier than last week. While mills report no big backlog of orders, they are experiencing a steady volume.

Central States

Some feed manufacturers report more orders for feed during the week ending Nov. 14 in the central states, but there is not total agreement on this score. A few firms say business has slowed down.

On the positive side, some reporters say an appreciable pickup is apparent, mainly because of the anticipation of inclement weather. This, they say, will get livestock in under cover, with the likelihood that formula feed consumption will rise. The prolonged pleasant weather this fall has permitted grazing and outside feeding much longer than usual.

Some observers believe the recent war scare, which still prevails somewhat, caused moderate buying. Some ingredient prices were forced upward, they say, and this led some dealers and feeders to buy and try to beat expected additional advances. Prices this week are about level. Order backlogs are virtually non-existent. October held about even with the same month a year ago, and the same is true of November so far.

Ohio Valley

Weather Bureau predictions of a sharp temperature drop early this week in the Ohio Valley failed to materialize, and the continuing warm weather has tended to slow down sales of formula feeds considerably. Contributing factors have been the sharp drop in sales of turkey feeds because of active marketing, and continued lagging in sales of other poultry feeds because of the depressed retail price situation.

Unless there is an unanticipated improvement soon in market prices, it is expected the recent request of the American Poultry & Hatchery Fed. for a sharp cutback in egg settings will be extensively complied with in this area. The extent to which this might adversely affect mid-winter sales of poultry feeds cannot, of course, be predicted now, but it could

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be a factor of considerable proportions.

Formula feed prices remained steady this week, but mill operations of one and two shifts at most plants were sufficient to balance production with orders.

Northeast

Sales of formula feeds continued to slow down, and the outlook for next week is not too good. One spokesman said demand for broiler feeds has slowed considerably because of the "sick" broiler market. Egg mashes did well.

Dairy feed demand is moving along, with feeds to mix with grains on the farm and higher-priced feeds the most in demand.

Broilers in the Buffalo area were about steady, and eggs held fairly good.

Prices of ingredients were mostly on the up side this week. All grains were higher. Linseed oil meal was up $1 and soybean oil meal gained a little.

Millfeed sales were slow. Demand from mixers was spotty, with a slight pickup in some areas and others holding unchanged.

Southeast

The feed situation held unchanged this week. Baby chick placements were slightly lower than the last reporting period but were about one third more than the same week last year in the North Georgia broiler producing area. The broiler market has advanced from recent drastic lows but is still below a break-even basis, according to reports.

A short-lived cold snap which reached down into Florida last week stimulated some buying interest from the trade, but nothing substantial has developed as yet. Ground snapped corn still moves only slowly. There has been some indication of supplies becoming burdensome at mills with some pressure building up for sales, but prices continue to hold at an unchanged level. Most jobbers and brokers report that business has been on the slow side all week.

The Southeastern corn crop has been practically all harvested now, and more outside supplies will be shipped in. Shell corn has been in good demand, and prices have held above last year's low price.

Fruit maturity in Florida has not reached expectations for this time of year, and truck deliveries of feed materials on backhauls have been unusually slow. This is expected to get increasingly better from now until the movement slows again in the spring. New crop citrus pulp is also slow due to late fruit. Cottonseed meal is relatively hard to find, and prices are stable.

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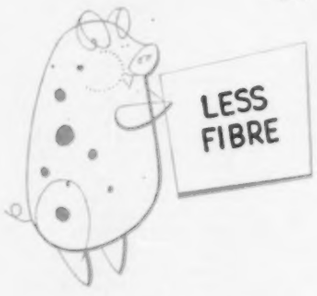

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